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LIFE INSURANCE INVESTMENTS IN NATURAL GAS PIPELINES*

RICHARD W. HOOLEY

Life insurance funds have played a significant role in the development of natural gas pipelines. Both established transmission lines and newly-organized pipelines have relied upon life insurers for capital. Purchase of pipeline securities in large volume by life insurance investors has been of the utmost importance in financing the rapid extension of natural gas service to major consuming areas on a commercial basis.

The first life insurance loans to gas pipelines were consummated during the nineteen-thirties. These pre-war investments were a mere trickle when compared with the volume of financing after 1945. From 1946 to 1956 natural gas transmission concerns expended approximately $5.9 billion for construction of additional facilities.[1] A large part of these funds was raised by the sale of debt instruments to institutional investors, and as a result the ratio of debt to total capitalization for pipelines rose from 40 per cent in 1945 to 62 per cent by 1951.[2] But the most interesting aspect of this financing is that the lion's share of the pipeline debt found its way into the portfolios of life insurance companies. In 1955, the most recent year for which data are available, interstate pipelines have approximately $2.9 billion of long-term debt outstanding. Of this amount life insurance companies held $1.8 billion, or about 65 per cent.[3]

An important reason why life insurance companies invested such a large volume of funds in pipeline bonds was their superior yield. In the new issue market, these securities have often yielded as much as ¼ per cent to ½ per cent above that of other utilities of comparable quality. In addition, life insurers have obtained concessions from pipeline borrowers, such as non-callable provisions.

The large volume of life insurance investments in pipeline bonds raises important financial questions. How can institutional investors justify investment in gas pipelines which often have high debt ratios and which are engaged in the risky business of hauling a wasting asset from the Southwest to consuming regions as much as 2,000 miles away?[4] In particular, what efforts have these investors made to protect their investments in transmission

* This paper is based on a Doctoral dissertation on natural gas financing completed at Columbia University in 1958 and financed in part by two summer fellowships awarded by The American Association of University Teachers of Insurance. The paper benefited materially from the helpful suggestions of Grant A. Martell, Second Vice President of the New York Life Insurance Company. The author alone, however, is responsible for the final result.

[1] American Gas Association, *Gas Facts: 1956* (New York, 1957), p. 217.

[2] U. S. Federal Power Commission, *Statistics of Natural Gas Companies* (Washington: U. S. Federal Power Commission, 1955), p. ix.

[3] Federal Power Commission, *loc. cit.*, p. ix; Cf., Institute of Life Insurance, *The Tally of Life Insurance Statistics* (February, 1957). In a few cases life insurance companies have purchased small amounts of pipeline equities.

[4] Debt ratios of life insurance financed pipelines have often been as high as 75 per cent, and ratios close to 90 per cent are not unknown. See Pacific Northwest Pipeline Corp., *Prospectus* (April 28, 1955), p. 7.

lines, and how successful have they been? These questions have heretofore been answered in either of two ways. There are those who hold that pipeline bonds do meet the tests of high quality, and in fact involve only a minimum of risk for their owners. Others have argued that these securities carry a high element of risk for their owners since the recent pipeline financing runs counter to the most elementary principles of prudent investment.[5] An intermediate ground between these two extreme views seems most tenable to this writer. The primary objective of this paper is to analyze some of the more important strengths and weaknesses of pipeline bonds, evaluating the efficacy of the means by which the life insurance companies have attempted to protect their investments.

Gas Reserve Problem

One of the most important risks to which an investor in gas pipeline bonds is ordinarily subject is the possibility that gas reserves will be exhausted before extinction of the indebtedness. Life insurance investors have sought to avoid this risk by requiring borrowers to obtain long-term commitments for a volume of gas supplies sufficient to meet the pipeline's requirements for a period extending at least to the maturity date of the bonds, and usually longer. Moreover, these bonds generally provide for repayment of a high percentage of the principal prior to maturity of the loan through annual or semi-annual payments into a sinking fund. Thus, while many pipeline loans have a nominal maturity of 20 years, the average maturity of the bonds is usually closer to 12 or 14 years.

When life insurance companies extend long-term credits to gas pipelines, they do so on the assumption that estimates of gas reserves are correct, for it is on the basis of these estimates that the sinking fund schedules are constructed. But these investors are aware of the tentative nature of gas reserve estimates, and they have sought additional protection against the possibility of a shortage of gas supplies by the inclusion of an acceleration clause in the sinking fund covenant. The object of this clause is to accelerate the schedule of amortization payments in the event that the original estimates of reserves available to the pipeline are revised downward at a later date. The bond indenture generally requires the borrower to supply the trustee with annual reports on the volume of the gas reserves dedicated to the pipeline under contract.[6] In addition to giving the volume of present supplies, the report also indicates the date of exhaustion of gas supplies. The date of exhaustion is the date on which the reported volume of gas would be exhausted on the assumption that the pipeline continues using gas at an annual volume equal to the volume consumed during the most recent calendar year. Indentures generally provide for revision of the sinking fund schedule in the event that the date of exhaustion of supplies is a date at least two years subsequent to the maturity date of the bonds.

Acceleration clauses were not included in pipeline issues purchased by life insurance companies during the early postwar period. When the number of years of gas supply began to decline in 1947, however, the life insurance companies put increased emphasis on the clause; and within a year or two almost all new issues

[5] Chandler, Marvin, "Trends in Public Utility Financing," *Commercial and Financial Chronicle* (August 10, 1950), p. 27. See also, Benjamin Graham and David L. Dodd, *Security Analysis*, 3rd ed., (New York: McGraw-Hill Book Company, 1951), pp. 337-338. Chandler takes the position that there is only a minimum of risk associated with gas pipeline bonds while Graham and Dodd view them as highly speculative investments.

[6] Most recent indentures also specify that the report on gas supplies be signed by an independent petroleum engineer at least every two or three years.

of privately placed pipeline bonds contained some kind of acceleration clause. One of the first loans to contain the provision was the Michigan Wisconsin first 3⅜'s, issued in 1948. This indenture specifies that the pipeline is to file annually with the trustee a "certificate of available gas supply."[7] If the certificate indicates exhaustion of reserves by a date prior to two years subsequent to the date of final maturity of the bonds, the sinking fund schedule is to be revised. In that event, sinking fund payments due subsequent to the new terminal date[8] on the bonds are to be spread over the remaining sinking fund installments. The revised schedule of payments constitutes the new payment schedule until further revision.

One of the most critical parts of any acceleration clause is the definition of gas supplies. The Michigan Wisconsin indenture defines "available gas supplies" as:

> The minimum volume of gas which the company can reasonably expect to obtain as required in the future at economically practicable prices whether or not the Company has a contract or other right or option to acquire such gas at or prior to the date as at which the available gas supply is being determined. . . .[9]

This definition subsequently was found to be inadequate on at least two points. First, there is no reference to location of gas supplies in determining the volume of available gas. Gas located in Canada might conceivably be included in available supplies for a pipeline whose major supply area is Texas. Second, consideration must be given to dedication of reserves to other parties as well as to proration and other orders of the state authorities in determining what constitutes available gas reserves. Consequently a more precise definition of available gas reserves made its appearance about a year later. It reads as follows:

> The term "available gas supply" shall mean the minimum volume of natural gas which, by reason of the existence of proven natural gas reserves (including gas in solution or in a common reservoir with oil or distillate in the form of casinghead gas) *and the location of such reserves in relation to the Company's lines, and after giving due consideration to the dedication of any portion of such reserves to others than the Company, to withdrawals from such reserves which may reasonably be expected and to all other pertinent factors relative to such reserves,* the Company can, in the opinion of the signer or signers of such a Certificate of Available Gas Supply, reasonably expect to produce, or to purchase at economically practical prices (whether or not the Company then has a contract right to purchase such gas), to meet requirements in the future for the purpose of transportation to the Company's markets and sale to its customers.[10] (italics added)

This last definition is now found in most loans placed privately with life insurance companies and in some public issues as well. More recently life insurance investors have moved to make the sinking fund schedule accelerate on evidence of a shortage in proved as well as available gas supplies.[11]

Life insurance companies appear to have succeeded rather well in protecting their investments in pipeline bonds against a shortage of gas supplies. There

[7] For a complete description of this covenant, see Michigan Wisconsin Pipe Line Co., *Mortgage and Deed of Trust* (September 1, 1948), p. 105.

[8] A terminal date is a date two years prior to the date of exhaustion of gas supplies.

[9] *Loc. cit.*, p. 39.

[10] El Paso Natural Gas Company, *Fourth Supplemental Indenture* (March 1, 1949), pp. 46-47.

[11] Proved reserves are reserves which are already discovered, while available reserves are supplies which in all probability will become available by the extension of known fields. Most interstate pipelines have contracts for a volume of proved reserves sufficient to meet requirements for 15-20 years at current levels of consumption. Available reserves for most lines are calculated to satisfy current requirements for 25-30 years. Some indentures also refer to "firm" gas supplies, which include only supplies owned by the pipeline or actually under contract to it from producers under FPC jurisdiction.

have been no important revisions of gas reserves available to interstate pipelines to date. Moreover, the carefully drawn acceleration clauses tend to shift most of the potential risk of a shortage of supplies to the equity investors.

Cash-flow Problem

It is one thing to construct a bond amortization schedule which provides full amortization of the debt prior to the estimated date of exhaustion of gas supplies; it is another for the borrower to generate sufficient cash to meet these heavy amortization payments. Pipeline bonds would be in a strong position if the annual depreciation accrual of the borrowing lines were always sufficient to cover bond amortization. In such a case the life insurance investors could be assured that an amount of cash sufficient to amortize their investments would not be distributed as dividends. But pipeline depreciation accruals have not always been sufficient to cover fully debt amortization charges. This is because the basis for constructing the bond amortization schedule is different from that used to establish annual depreciation rates.

Life insurance investors have taken the view that pipeline bonds should be retired by the date of exhaustion of proved reserves. Thus, a pipeline with 80 per cent of its capitalization represented by 20-year bonds which are to be entirely amortized by maturity must depreciate at an annual rate of 4 per cent of the cost of its properties if the depreciation accrual is to satisfy completely the annual sinking fund requirements. However, the Federal Power Commission has generally refused to allow pipelines to depreciate at anything over 3½ per cent. A 3 per cent rate is common.[12] In setting depreciation rates, the Commission has been guided by the length of life of pipeline facilities as measured by the volume of available reserves and not by the volume of proved reserves.

Pipelines constructed since 1946 and relying on the sale of bonds to insurance companies for a large part of their capital have sometimes developed cash-flow problems. The stringency of the cash-flow is not apparent in the early years of operation, since sinking fund payments are designed to increase with the pipeline's load factor so as to reach their 'normal' level only 3 or 4 years after construction of the line has commenced. As the amortization payments increase, however, the depreciation accrual may become inadequate, forcing the pipeline to divert earnings to debt service. Moreover, this is likely to be at a time when the pipeline is about to undertake construction of additional facilities for expansion of throughput. It needs all its current earnings to maintain dividends on its stock (so that it can market additional shares at favorable prices) and to plow back as equity on the new additions.[13]

This is precisely the situation that Transcontinental Gas Pipe Line faced in 1954. After three years of operation it was found that the cash flow of the company was insufficient to support the existing amortization payments, stock dividends, and a projected $80 million expansion program. In these circumstances the Transcontinental management approached the life insurance companies with respect to renegotiating terms of the debt. All of Transcontinental's bonded debt was privately negotiated — raising the interest rates, lengthening the maturities, and reducing amortization charges. The life insurance companies

[12] In 1954 the Commission reduced a pipeline's proposed annual depreciation charge from 4 per cent to 3.46 per cent. U. S. Federal Power Commission, *Re. Panhandle Eastern Pipeline Company*, 3 PUR 3d, pp. 431-37.

[13] Pipeline bond indentures usually restrict the borrower from issuing additional bonds in excess of two-thirds of the cost or fair value (whichever is lower) of additions to plant.

agreed, in addition, to allow approximately $26 million of sinking fund payments, due during 1955 and 1956, to be retained by the company to help finance new construction. Nevertheless, the new issues as renegotiated provided for amortization of their entire amount by maturity. This was consistent with a lengthening of the debt because Transcontinental had been adding to its gas reserves since the dates of previous financings.

It is interesting to observe that in recent pipeline loans the life insurance investors have sought to protect themselves against a recurrence of this cash-flow problem. In one case a special provision was inserted in the pipeline's mortgage indenture requiring the borrower to deposit annually with the trustee cash equal to the excess of the pipeline's annual depreciation accrual over payments into the sinking fund, from the date of completion of the line.[14] At the discretion of the insurance companies, cash paid into this "depreciation deficiency fund" may be used either for the redemption of bonds outstanding under the mortgage or made the basis for property additions begun within three years of the date received into the fund.

Debt Ratio Problem

When pipeline bonds were first being marketed in large volume to institutional investors, it was often argued that the high proportion of capitalization represented by debt securities did not warrant special concern. Two reasons were usually given for this attitude. First, the large sinking funds on these issues were expected to result in a rapid increase in equity and a decline in the debt ratio.[15] Second, the life insurance companies had bargained for inclusion in many of the indentures—especially the privately negotiated issues—of provisions designed to prevent the pipeline management from exceeding certain limits with respect to issue of additional bonds. Mortgage indentures generally specify the aggregate principal amount of bonds that can be issued under the mortgage. As a further safeguard, escrow provisions restrict the issue of additional bonds to an amount equal to 60 per cent of the value of the net bondable property additions. Issue of the new bonds is also contingent on the borrower meeting certain financial tests.

The first financial test pertains to debt service coverage. Net earnings before interest and depreciation for the preceding 12 months must be at least 1½ times maximum annual service charges and 4½ times annual interest charges on all debt outstanding and to be outstanding. Again, net earnings before interest (but after deducting the depreciation accrual) for the same period must be at least 2¼ times annual interest charges on all debt outstanding and to be outstanding.[16] Some mortgage indentures also require the borrower to show a ratio of total long-term debt to total capitalization less than some specified figure before additional bonds can be issued against new facilities. The limit varies with the issue, but 70 to 75 per cent is common.

In an effort to insure a certain minimum equity investment, some mortgages contain a provision forbidding the borrower from paying cash dividends on stock in the event the equity margin declines below some stated minimum. The typical provision of this kind proscribes payment of common dividends unless

[14] Trans-Canada Pipe Lines Limited, *Prospectus* (February 13, 1957), p. 29. The indenture also specifies the minimum depreciation charge to be 3½ per cent per annum of properties at cost.

[15] See Nelson Lee Smith's concurring opinion in the Texas Eastern hearings before the Federal Power Commission, 8 *FPC Reports* (1949), 204 (note 1).

[16] See, e.g., Texas Eastern Penn-Jersey Transmission Corp., *Mortgage and Deed of Trust* (May 1, 1954), pp. 89 ff.

earned surplus, after payment of common dividends, is at least some minimum amount, usually referred to as "restricted earned surplus." Restricted earned surplus is often the amount of earned surplus shown on the borrower's balance sheet as of the December 31st preceding the date of the loan, plus a predetermined "cushion." Many mortgages go further and also forbid payment of dividends on common stock in the event the debt ratio exceeds a specified percentage. More recently the dividend restriction has been extended to preferred as well as common stocks.[17]

Debenture bonds issued by the pipelines also contain some type of protection against dilution of the lender's interest in the business. Virtually all debentures include a clause which requires the borrower to secure the debentures equally with any other long-term debt subsequently issued, with the exception of bonds already authorized under the existing first mortgage. In addition, the issue of additional long-term debt is usually prohibited unless the ratio of total long-term debt to total capitalization does not exceed a proscribed limit, generally 65 to 70 per cent. Dividends on the common stock may not be paid out of "restricted earned surplus." In addition to these clauses, there is often another covenant peculiar to the debentures whereby the borrower (including subsidiaries) is not permitted to make any additional investment unless the ratio of long-term debt to total capitalization (after deducting investments made subsequent to the date of the loan) is 75 per cent or less. In other words, additional investments by the borrower must be made from equity funds once the 75 per cent debt ratio on existing properties has been reached. This tends to keep the debenture holder's claim on the business clear as of the date of the loan.[18]

The effectiveness of these provisions for keeping pipeline debt ratios at workable levels is certainly open to question. In the first place, the sinking funds have not been effective in reducing the volume of outstanding pipeline debt. The ratio of long-term debt for the pipeline industry, which was 40 per cent in 1946, is still, a decade later, 60 per cent. The reason why the high ratio persists in spite of large amortization payments is that in recent years the industry has borrowed nearly as large a volume of funds as it has repaid by amortization.

Attempts by the lenders to maintain equity for their bonds by holding down the volume of additional borrowings has met with only partial success. Escrow provisions with respect to the issue of additional mortgage bonds can be in effect circumvented by the issue of non-mortgage debt, viz., debentures and short-term loans. While it is true that these lenders have no lien on physical assets as such, the interest and amortization charges of the unsecured debts constitute a claim on earnings, and hence effectively reduce the debt service coverage on the secured debt. That life insurance lenders have become concerned about this matter is suggested by the fact that a pipeline mortgage indenture recently negotiated with life insurance investors limits the ratio of total debt (including short-term loans) to total capitalization to 75 per cent.[19]

Another method employed by bor-

[17] For typical examples, see Trunkline Gas Co., *Mortgage and Deed of Trust* (July 1, 1950), p. 109; see also El Paso Natural Gas Co., *Seventeenth Supplemental Indenture* (October 1, 1955), p. 72.

[18] For a debenture including a fairly typical set of these restrictive covenants, see Texas Eastern Transmission Corp., *Indenture* (March 1, 1954).

[19] Pacific Northwest Pipeline Corp., *Mortgage and Deed of Trust* (October 1, 1955), pp. 132-33. The indenture further stipulates that the borrower must be completely free of short-term indebtedness for a period of 60 (continuous) days each year.

rowers to evade restrictions on issue of additional debt is through the creation, in effect, of a divisional lien. This may be illustrated by the procedure used to finance the Wilcox Trend Gathering System, Inc., a subsidiary of Texas Eastern Transmission Corp. The Texas Eastern management desired to finance Wilcox Trend on the basis of a capitalization consisting of 75 per cent debt. However, the original mortgage indenture covering Texas Eastern properties specifies that property additions may be bonded only up to 60 per cent of cost or fair value, whichever is less. Consequently Texas Eastern approached Metropolitan Life Insurance Company with a proposal for Metropolitan to purchase $7.9 million of Wilcox Trend first mortgage bonds. As security for the bonds Metropolitan received a lien on all Wilcox properties, including a 20-year contract between Wilcox and Texas Eastern whereby the latter leased the Wilcox facilities for the life of the bonds. The contract provides an annual rental for Wilcox facilities sufficient to cover the debt service and also provide a 6 per cent return on the Wilcox properties.[20] This method of financing the additions to Texas Eastern facilities thoroughly frustrated the escrow provisions in the original Texas Eastern mortgage indenture since the financing was accomplished on a 75 per cent debt basis. The new bondholders are in at least as strong a position as holders of the original issue.

Problem of Rising Prices

A feature of pipeline bonds of singular importance in establishing their investment merit has been the presence of long-term contracts for the purchase and sale of throughput. Contracts for the purchase of throughput generally run for 20 years, and stipulate a certain quantity of gas which the pipeline is expected to purchase each day, called the *daily contract quantity*. Most contracts contain a take-or-pay-for provision whereby the pipeline's minimum bill for the year is established by taking a specified percentage (generally 65 to 75 per cent) of the daily contract quantity multiplied by 365. The price which the seller receives is also stated in the contract. Almost invariably, however, the contract contains one or more price escalation clauses, so that the delivery price of gas to the pipeline rises over the term of the contract. One type of escalation clause raises the price automatically at certain time intervals. A price increase of 1¢ per million cubic feet every five years has been quite common in the past. Another type of price escalation is known as the "favored nation" clause, of which there are various types. Essentially, the favored nation clause provides for increasing the price of gas to the pipeline in the event that gas in the comparable cost area is sold at a higher price.

Most of pipeline throughput is also sold under long-term contracts. Pipelines usually draw 20-year contracts with the major consuming utilities which provide that the pipeline will service the utilities, i.e., supply the latter with their gas needs, up to some maximum figure. Each contract specifies the daily contract quantity, and the consuming utilities agree to take at least some specified minimum based on the contract quantity (usually 65 to 75 per cent of the latter). But the sales contracts differ from the purchase contracts in that the former generally do not specify the price of the gas but rather state that it is to be sold under the pipeline's prevailing tariff as approved by the Federal Power Commission.[21]

[20] Wilcox Trend Gathering System Inc., *Mortgage and Deed of Trust* (August 1, 1952).

[21] For typical purchase and sale contracts, see Transcontinental Gas Pipe Line Corp., *Prospectus* (December 2, 1948). This prospectus contains a description of some of the most common types of favored nation clauses.

Prices at which pipelines have been able to purchase gas have risen sharply over the past decade. In 1946 the average wellhead price of gas in the West South Central states (Arkansas, Louisiana, Oklahoma, and Texas) was 3.1¢ per million cubic feet, compared with 8.4¢ per M.c.f. in 1954 — an increase of approximately 171 per cent. Recent data on price changes since 1954 suggest that this upward pressure on wellhead prices has continued without any sign of interruption.[22]

Until recently the pipelines were able to pass these higher costs of purchased gas on to the consuming utilities by filing new service rates with the Federal Power Commission. The Commission usually followed the procedure of suspending a proposed tariff change pending a hearing with respect to its reasonableness. In the event that the hearing was not completed within five months from the date of the initial filing by the pipeline, the new rate could go into effect under bond. In the Memphis case, however, a lower court held that this procedure is invalid unless the distributing utilities first gave their consent to the tentative rate increase.[23] If the pipeline's customers refuse to grant the increase voluntarily, then the transmission concern must apply under section 5(a) of the Natural Gas Act. If the latter course is followed, it is necessary for the Commission to first hold hearings reviewing the record on existing rates. If these are found to be unreasonable, then the Commission may establish new rates. Moreover, under the new procedure established as a result of the Memphis decision, the new rates cannot go into effect until after conclusion of the hearings.

The adjustment of the rate procedure required by the Memphis decision involves consequences of primary importance for investors in natural gas pipelines. Ceteribus paribus, the new rate procedure will make it more difficult for pipelines to raise their rates, since it must first be shown that existing rates are unfair before a new tariff can be considered. Perhaps most important, increases in pipeline sales prices will be much slower than in the past because rate proceedings under Section 5(a) of the Act may take up to several years, and price increases cannot go into effect under bond pending final settlement. Inasmuch as pipelines are subject to sharply rising prices for the purchase of their throughput, long delays in sales price increases will probably result in considerable reductions in pipeline earnings. Chairman Kuykendal of the Federal Power Commission has gone so far as to predict financial reorganization or bankruptcy of some major transmission lines if the Memphis decision is confirmed by the U.S. Supreme Court.[24]

The Memphis decision emphasizes an important weakness in the input-output contracts. The transmission business has received considerable stability from the fact that it has long-term contracts for the purchase and sale of its throughput. These contracts provide for rapid price increases on purchased gas, with no similar provision for decreases of those prices and without respect to the rates charged by pipelines at the distributing end of the line. Important elements of risk are thus added to the situation. It appears that this risk has not been fully appreciated by institutional investors in the past. It

[22] American Gas Association, *Historical Statistics of the Gas Industry* (New York, 1956), pp. 42-44; for recent price trends, see U. S. Bureau of the Census, *Statistical Abstract of the United States: 1957* (Washington, 1957), p. 325.

[23] U. S. Court of Appeals, District of Columbia, *Memphis Light, Gas and Water Division, et al.*, v. *F. P. C.* (November 21, 1957).

[24] *New York Times* (December 31, 1957), p. 23. An opinion of the Supreme Court affirming the Memphis decision would also have immediate financial consequences for pipelines which are currently collecting rate increases under bond.

can even be argued that institutional investors have helped precipitate this situation. Pipelines have been put in the position of bidding against one another for future delivery of a limited resource. Gas producers, aware of the pipelines' need for long-term commitments for gas have reacted by demanding spiral escalation clauses as a prerequisite to signing these long-term contracts. And it is these escalation clauses which have been such a prominent factor in the sharp rise of gas prices during the past decade and which have contributed significantly to the pipelines' present pricing problems.

Conclusion

There is no simple answer to the question as to how successful the life insurance companies have been in protecting themselves against the risks ordinarily associated with investments in gas pipelines. On the matter of providing throughput, they appear to have been singularly successful in protecting themselves against shortages of gas supplies during the life of their investments. They have accomplished this by application of amortization schedules designed to liquidate their investments before exhaustion of gas supplies and the inclusion of acceleration clauses which effectively transfer to the equity investors any risk from revision of reserve estimates. Generally, pipelines have been able to generate sufficient cash-flow to satisfy their heavy charges for debt service, but there are at least two instances where large interstate pipelines have found it necessary to renegotiate loans placed with life insurance companies because the cash-flow was inadequate to meet scheduled amortization payments and also provide for expansion of facilities.

The most serious difficulties, in the view of this writer, are the failure of the pipelines to reduce their debt significantly and the adverse effect on earnings from a "price squeeze" resulting from rapid increases in the cost of purchased gas. With respect to the debt ratio, it has been shown how borrowers have sometimes managed to evade indenture restrictions on the amount of additional borrowing. In some cases additions have been financed on the basis of a 75 per cent debt ratio. As a result, many of the insurance-financed lines still have ratios of funded debt to total capitalization near 70 per cent. In view of the endless fog of legal and political uncertainty which continues to surround the industry, a capital structure with less debt seems highly desirable.

Until recently pipelines have been able to pass on to their customers all or most of increases in prices of purchased gas. But if the Memphis decision is sustained in the Supreme Court, it is likely that gas sales prices may rise more slowly than wellhead prices, and earnings of the transmission concerns would therefore suffer. This would increase markedly the risk involved to owners of the pipeline debt. But assume that the Memphis decision is reversed and pipeline earnings are maintained by rapidly rising gas sales prices. In this case the life insurance companies' investments in pipelines are benefiting from fortuitous factors and not from the lenders' foresight. That is, the rise in gas sales prices is possible only if the prices of other fuels, especially oil, also rise.

DEFICIENCY RESERVES AND THE X_{17} MORTALITY TABLE*

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One of the most important and most widely publicized problems facing certain segments of the life insurance industry today is that of deficiency reserves and their resultant impact on life insurance premiums and company earnings. The purpose of this paper is to provide a compact discussion of this problem and its proposed and adopted solutions. In order to give as clear and as complete an analysis as possible the treatment will be divided into three sections. The first portion will contain a study of deficiency reserves per se, including their definition, the reasons why they are currently significant, their justification or rationale, and the alternative methods of meeting the difficulties which they create. The second section will treat the specific proposed solution currently being considered by the life insurance industry, i.e., the X_{17} or Commissioners Approved Standard Ordinary Mortality Table, which has been suggested for use as a permissive standard of valuation in all states. The history, sources, construction, attributes, and criticisms of the new table will be examined. The third part will be a statistical analysis of mortality rates comparing data for insured lives with those for comparable population groups. An attempt will be made to determine what significant differences exist and to measure the extent of these differences.

The importance of the problem, as far as the insurance business is concerned, is indicated by the names of the organizations which have given the topic a high place on the agenda of their meetings. In 1957 the following groups gave special consideration and discussion to deficiency reserves and the X_{17} table: The National Association of Insurance Commissioners; the Society of Actuaries; the American Life Convention; and the Life Insurance Association of America. While some in the industry are concerned with the problem as it relates to public relations, the majority seem interested in the technical and legal aspects as they affect the price and security of life insurance. In any case, motives aside, industry people clearly perceive this as one of the most important problems being faced.

Deficiency Reserves

The deficiency reserve, like any other reserve, will appear as a liability on the balance sheet. However, it is entirely distinct and separate from the premium reserves typically found on the financial statement; and it is held in addition to any other legal reserve requirements such

* Editor's Note: In view of the significance of mortality table considerations in the life insurance business at this time, it has been decided to publish this and the following article by Allen L. Mayerson on this subject. Each uses a different approach in treating most aspects of the question, and the Editorial Staff felt that the reader would profit from examining both papers.

as the statutory minimum reserves.[1]

The deficiency reserve requirement in the California Insurance Code[2] reads as follows:

> "If the gross premium charged by any life insurance insurer on any policy or contract is less than the net premium for the policy or contract according to the mortality table, rate of interest and method used in calculating the reserve thereon, there shall be maintained on such policy or contract a deficiency reserve in addition to all other reserves required by law. For each such policy or contract the deficiency reserve shall be the present value, according to such standard, of an annuity of the difference between such net premium and the premium charged for such policy or contract, running for the remainder of the premium-paying period."

Thus the company is obliged to set up this additional reserve in every case where the premium charged the insured, i.e., the gross premium, is less than the net premium based on the valuation standard.

In order to understand how the gross premium which the insured pays can be less than the net premium used to compute reserves the following must be kept in mind: (1) the premiums which a company charges are based on its current projections of future mortality, interest rates, and expenses, with appropriate safety margins and (2) the reserves which a company shows on its books as a liability must be equal to or greater than the statutory minimum specified in the laws of the states in which it operates. The minimum statutory reserves are usually defined in terms of three components: (1) a mortality table (currently the CSO); (2) a maximum rate of interest (currently 3½ per cent); and (3) a method of valuation (currently the Commissioners Reserve Valuation Method).[3] A company is free to choose any standard and method for reserve computation which it prefers as long as the reserves produced are at least as large as those which would result from using the minimum standard. As a matter of practice a great many companies today hold reserves on a more conservative basis than the minimum, the most typical probably being Net Level Premium Reserves based on the CSO table and 2½ per cent interest.

The problem of deficiency reserves arises when improvement in the cost factors of life insurance—mortality, interest, and expenses—enables a company to reduce its price to a point below the level of the net premium which it is using in its reserve calculations. At this point the company must set up deficiency reserves or move to a different reserve standard (one, however, which is at least equal to the statutory minimum) by raising the interest rate or changing the method of valuation. If the net premium associated with this new reserve basis is lower than or equal to the gross premium charged the insured, then deficiency reserves can be avoided. To a certain extent this solution of changing the reserve basis is only a temporary one; for if the gross premium continues to be reduced, the reserve basis which the company chooses eventually will be the minimum. From then on deficiency reserves are inevitable. However, if a company is willing to construct and use for valuation purposes a mortality table which produces low net premiums (i.e., one which has low level of mortality) but still produces reserves

[1] According to Alfred Guertin, Actuary for the American Life Convention, deficiency reserve requirements are written into the laws of 34 states and historical practice has made them a fixture in the business. American Life Convention, *Proceedings*, Vol. 51 (1956).

[2] Section 10489.6.

[3] For a fuller discussion of minimum reserve requirements see David B. Houston, "The Relationship between Minimum Reserves and Non-Forfeiture Values," *Review of Insurance Studies*, Vol. III, No. 3 (Fall, 1956), pp. 130-134.

equal to or greater than the aggregate minimum, it can avoid the deficiency reserve problem. Companies may be reluctant to weaken the reserve basis or introduce deviant mortality tables because of their natural conservatism and because of their fear that such a move would create a public relations problem.

In actuarial terms the deficiency reserve is equal to the present value of an annuity due in the amount of the excess of the net premium used for valuation purposes over the gross premium, extending for a time period equal to the premium paying period. Thus in the case of an ordinary life policy:

if $G.P._x$ is the gross level premium charged an insured age x

P_x is the net level premium based on the reserve standard

$\ddot{a}_x$ is the present value of a whole life annuity due

and DV_x is the initial deficiency reserve then

$$DV_x = \ddot{a}_x(P_x - G.P._x) \text{ where } P_x > G.P._x \quad (1)$$

and after "t" years the deficiency reserve ($_tDV_x$) would be

$$_tDV_x = \ddot{a}_{x+t}\ (P_x - G.P._x) \quad (2)$$

The deficiency reserve, unlike normal premium reserves, decreases as the policy grows older, for as "t" increases, $\ddot{a}_{x+t}$ decreases. This, in effect, means that the deficiency reserve makes its greatest strain on surplus and earnings when the policy is written. This is simultaneous with the initial expense drain on surplus. The combined effect of these two factors can work a material hardship on a company with a moderate or small surplus.

If the actuarial analysis be carried one step further, it is interesting to examine the total reserve picture when deficiency reserves are present. The normal premium reserve is equal to the present value of future benefits less the present value of future premiums. When computed on a net level basis, it is represented in actuarial notation as follows:

$$_tV_x = A_{x+t} - P_x(\ddot{a}_{x+t}) \quad (3)$$

where $_tV_x$ is the net level premium reserve after "t" years on an ordinary life policy,

and A_{x+t} is the present value, at age x+t, of future benefits.

Now if equations (2) and (3) be added, the sum will be the aggregate reserves held by a company whose gross premiums are less than its net valuation premiums. The following equation results:

$$_tV_x + _tDV_x = A_{x+t} - G.P._x(\ddot{a}_{x+t}) \quad (4)$$

This relation indicates that in spite of the fact the deficiency reserve is a decreasing one, aggregate reserves increase continually over the life of the policy. This is true because A_{x+t} increases with time, $G.P._x$ is fixed, and $\ddot{a}_{x+t}$ decreases as the policy grows older. Thus the periodic decreases in the deficiency reserve are more than made up by increases in the net level premium reserve.

In a certain sense equation (4) can be viewed as a gross premium valuation since it discounts future gross premiums ($G.P._x$). However, it does not follow the form of the typical gross premium method since there is no relationship between the gross premium used and the other values in the formula (A_{x+t} and $\ddot{a}_{x+t}$). Nonetheless, the fact that equation (4) is similar to a gross premium valuation raises an interesting theoretical question concerning the adequacy of the deficiency reserve. This will be discussed when its justifications are considered.

The nature of the deficiency reserve requirement is such that it is possible that a problem would never arise. If mortality rates and interest rates remained constant over time or worsened (i.e., mortality rates increased or interest rates decreased) no company would ever have to

establish a deficiency reserve. Ironically enough, it is because some of the cost factors in life insurance have been reduced that companies face a deficiency reserve problem. Steadily improving mortality rates have been reflected in lower premiums, whereas the minimum reserves are still tied to the CSO table which is based on experience from 1930 to 1940.

A comparison of the mortality experience on insured lives for the periods 1930-1940 and 1950-1954 indicates that there has been an average decrease in mortality of about 37 per cent.[4] Table 1 shows the percentage decrease in mortality between the two experience periods for selected ages.

TABLE 1

PERCENTAGE DECREASE IN MORTALITY RATES AT SELECTED AGES (1930—1940 vs. 1950—1954)

Age	*Decrease*
2	77%
22	50
42	40
62	25
82	20

Source: Sternhell, Charles M. "The New Standard Ordinary Mortality Table," *Transactions of the Society of Actuaries*, Vol. IX, (1957).
Age 2 derived from p. 19.
Ages 22 through 82 derived from p. 6.

Thus it is clear that the decrease in mortality rates is significant at all ages and that it tends to be greatest at the lower ages and to become progressively less at the older ages.

A second factor which has worked to reduce gross premiums has been the expense savings which insurers have been able to effect, especially on the "giant" size policies. These are usually contracts written for a minimum of $10,000 or $25,000. They are offered at lower rates because such expenses as the cost of the medical examination, the inspection report, clerical expense, and overhead are not tied directly to the size of the policy but tend to be constant for any contract issued.

These two factors, mortality and expenses, have enabled the companies to reduce the cost of insurance rather consistently over the past ten years. For nonparticipating contracts these cost reductions are reflected directly in lower initial premiums. For participating contracts the initial premium scale might remain unchanged and savings could be passed on through an increased dividend scale. This difference in approach is one of the keys to understanding the deficiency reserve problem, for the law relates only to the initial gross premium charged the insured and not to gross premiums less dividends. Consequently, the companies issuing participating policies, which represent the bulk of the business, are not affected by the deficiency reserve law since they can maintain gross initial premiums in excess of the net premium of their valuation standard. On the other hand, the nonparticipating companies must reduce their gross initial premiums if they wish to pass on their reduced costs to the policyholders. Thus it is the stock companies which are primarily concerned. This is particularly true of the small stock companies which often do not possess the large surpluses necessary to support deficiency reserves. However, even for these companies the problem exists only for contracts where the protection or mortality element is important, i.e., term and ordinary life. They can be competitive without setting up deficiency reserves in other types of policies where the savings or investment element has a greater weight.

The main purpose of deficiency reserve statutes is to protect the security of the life insurance policy. The law is seen primarily as a device to regulate the price of insurance. Its proponents argue that it prevents rate inadequacy and price wars which would lead to rate inadequacy.

[4] Sternhell, Charles M., "The New Standard Ordinary Mortality Table," *Transactions of the Society of Actuaries*, Vol. IX (1957), derived from data given on p. 20.

Prolonged rate inadequacies will result in company failures and a weakening of the security of the industry's product. The law implicitly defines adequacy as the net premium on the valuation basis which the company employs and exacts a penalty if the gross premium is less. Most interested parties seem agreed that the intention of the law is clear and proper. There is little agreement as to the adequacy of the means used to attain this end.

From the most conservative, perhaps even reactionary, position it would be possible to argue that the deficiency reserves as established under the current laws are insufficient. This would be based on equation (4) above which shows a pseudo-gross premium method of valuation when deficiency reserves are present. If in equation (4) A_{x+t} is a true measure of the present value of future benefits, as the defenders of the law must maintain, then aggregate reserves are inadequate. This is true since the formula uses the gross premium in valuing future premiums, which means that it has made no provision for future expenses. A proper valuation would require that the net premium underlying the gross premium should be substituted for the gross premium in equation (4). In order to accomplish this change the law would have to become effective when the net premium underlying the gross premium charged the public was less than the net premium derived from the reserve basis. This would mean that deficiency reserves would be larger and would be required more often. In connection with this interesting theoretical point one practical fact should be mentioned: no one is advocating this position. The reason for this is obvious. In the current situation the value of A_{x+t}, based on the mortality assumption used (CSO), is not an accurate measure of the present value of the future benefits but is grossly overstated.

The arguments against the deficiency reserve statute in its present form are much stronger than those offered in its support.[5] The problem, however, is quite complex. Since 1948 nearly all new business has been reserved on a CSO basis at various rates of interest. This table produces high net premiums because of its high level of mortality compared to the present situation. As long as this table is used as a basis for reserves, a deficiency reserve problem will exist. The state laws permit the companies to use any table they choose as a basis for reserves providing minimum aggregate reserves are developed.[6]

The size of reserves is not a function of the level of mortality. Thus a high level mortality table could produce low reserves and vice versa. The size of the reserves is related to the slope of the mortality curve.[7] Therefore a company could design a table which would have a low level of mortality, and thus one which would produce low net premiums, and still develop reserves high enough to meet the company's and the states' desires. This solution has been given little if any consideration because the individual companies are reluctant to deviate from the universally used CSO table for fear of adverse publicity and public relations. They fear the accusation of inadequate and improperly determined reserves even though it would be a false one. This indicates the grip which traditionalism and conservatism have on many individuals in the business. While these factors have made the product secure and the industry strong, they have also resulted in certain

[5] The most complete concise discussion of the defects of the deficiency reserve requirements was given by C. A. Ormsby in the *Transactions of the Society of Actuaries*, Vol. IX (1957), p. 213.

[6] Robert I. Mehr and Robert W. Osler, *Modern Life Insurance*, Rev. ed. (New York: Macmillan Co., 1956), p. 690.

[7] Joseph B. Maclean, *Life Insurance*, 8th Ed. (New York: McGraw-Hill Book Co., Inc., 1957), pp. 127-129.

archaic practices and some unnecessary and abstruse debates.

The deficiency reserve problem is a good case in point. The companies which want a change are unwilling to make the change on their own even though the law allows them to do so. They feel the need of industry-wide and nationwide endorsement of the change, i.e., the substitution of an up-to-date mortality table for the outmoded CSO. However, the large mutuals, which dominate the business, are indifferent to a new table since they are not affected by the deficiency reserve laws. Consequently the debate rumbles on, rather spasmodically, and the issues being discussed are not the real issues underlying the problem. Those persons interested in changing the law have decided that the move to substitute a new mortality table must have nearly unanimous approval, but the change is important to only a small segment of the industry.

If the assumption is made that united rather than individual action is required, it is generally agreed that the most satisfactory solution is the substitution of a new mortality table as a permissive basis for valuation. This would provide immediate, although possibly only temporary, relief to those companies with a deficiency reserve problem. If mortality improvements in the future keep pace with those of the past twenty years, it would not be long, perhaps less than a decade, before the new table would be outmoded and the deficiency reserve problem would reappear. While actuaries recognize this clearly, this solution seems preferable as it appears to have the best chances of getting through the various state legislatures and it seems unlikely that mortality will continue to improve as rapidly as it has since 1930.

In addition to the substitution of a new mortality table there have been two other solutions proposed and widely discussed. The first suggests the repeal of deficiency reserve statutes. The rate regulatory effect of these laws, it is argued, could be accomplished more effectively and more equitably by a statute similar to Section 213 of the New York Insurance Code which prohibits the issue of any policy which does not appear to be self-supporting on reasonable assumptions as to interest, mortality, and expenses. However, it was felt that getting the legislatures to repeal the deficiency reserve laws was a nearly impossible task and certainly could not be accomplished in the near future. The second proposal, which has many variations, involves basing the deficiency reserve on the minimum statutory reserve requirement rather than on the reserve basis which the company is actually employing. This would have the effect in nearly all cases of reducing and in many cases of eliminating deficiency reserves. However, it was rejected because of legislative difficulties and charges of inconsistency since under such a law a company could hold two reserves computed on different bases on one policy.

It is clear that for small stock companies deficiency reserves are a pressing problem. The effect of the law is to put them at a competitive disadvantage since they are discouraged or prohibited from issuing low cost policies which appear justified on current actuarial assumptions. In order to compete they are usually forced to adopt a less conservative reserve basis. This is, to say the least, a paradoxical solution. For example, consider two companies charging identical gross premiums, valuing their policies on the same basis, and both facing a deficiency reserve problem. One company decides to avoid the deficiency reserve by changing its valuation basis to one which is less conservative, while the other maintains its valuation basis and sets up deficiency reserves. This means that the second company is not only maintaining a larger

premium reserve than the first company but also must set up a deficiency reserve precisely because it is more conservative.

Inconsistencies such as the above cannot be overlooked. While the intentions of the law may be desirable, the means by which they are accomplished are definitely unsatisfactory. Repeal is the logical conclusion, but legislatures are not logical. Consequently a new mortality table has been constructed and proposed for adoption in all states as a permissive standard of valuation. The next section will deal with certain important aspects of this table.

The X_{17} or Commissioners Approved Standard Ordinary Mortality Table

The active drive for the substitution of a more up-to-date mortality table as a permissive standard of valuation started in 1956. The Joint Legislative Committee of the American Life Convention and the Life Insurance Association of America had studied the problem and decided that immediate action was desirable. They felt that the solution most likely to succeed was the use of a new table as a permissive basis.[8] At the June, 1956 meeting of the National Association of Insurance Commissioners, Alfred N. Guertin, Actuary of the American Life Convention, presented a statement to the Life Insurance Committee of the N.A.I.C. describing the problem and its proposed solution.[9] At this time it was hoped that the N.A.I.C. could approve the proposal at its December meeting so that the legislatures meeting in the first half of 1957, of which there were several, could pass the necessary legislation. A Deficiency Reserves Sub-Committee of the N.A.I.C. was set up with representatives from seven states, and at about the same time the President of the Society of Actuaries appointed a committee to cooperate with the Subcommittee in constructing a new mortality table.

On November 23, 1956 the committee of the Society of Actuaries submitted a report containing a new table, the X_{17}, which they felt would fill the present need. However, the N.A.I.C., meeting in December, thought that not enough time had been allowed for the various state actuaries to study the table and was unwilling to give its approval without further supporting evidence. The report was therefore referred back to the Sub-committee with action postponed until June, 1957. By June certain opposition had been organized, particularly by some small companies; and, since most of the state legislatures had met, time was no longer of the essence. Thus in both the June and December meetings in 1957 the table was again referred back to the Subcommittee for additional study. In July 1957 New Jersey became the first state to legalize the new table as a permissive standard, but it is not likely that many states will follow suit unless the N.A.I.C. gives its blessing. The Association again failed to lend its support to this proposed table at its June, 1958 meeting.

The X_{17} table, like all modern mortality tables designed for insurance purposes, was constructed solely on the basis of experience on insured lives. This is necessary since mortality on insured lives differs materially from that of the general population, which has been shown in many writings on the subject. X_{17} is an ultimate table which means that to a large extent the advantageous mortality effects of selection have been removed. The general procedure used in making a mortality table is to determine average death rates or q_x values at specific ages, say five years apart, based on the insured life experi-

[8] "Discussion of Report on the Need for a New Mortality Table," *Transactions of the Society of Actuaries*, Vol. VIII (1956), p. 505.

[9] *1956 Proceedings of National Association of Insurance Commissioners*, Vol. II, pp. 356-357.

ence. These "experience" rates are then loaded with a safety margin to cover inter-company variation. These "loaded" death rates at the specific ages are then graduated or smoothed, and death rates at all ages are found by interpolation formulae. The size of the margins and the methods of graduation and interpolation which are employed will be determined by the uses for which the table is intended. Thus with the X_{17} it must be kept in mind that it was planned for valuation purposes, and the criteria which it must meet are different from those applicable to tables designed for other functions such as premium computation or dividend allocation. Guertin had specified the following as useful criteria for the construction of the new table: [10] (1) its net premiums should be less than the gross premiums currently charged, (2) the level of mortality should be high enough to cover actual experience, (3) margins should be sufficient to produce mortality savings in keeping with the traditional dividend pattern, and (4) aggregate reserves should not be unduly affected so as to alter earnings margins adversely.

The new table [11] is based on an exposure of nearly $170 billions of insurance and death claims of close to $2 billion for ages 20 and greater. This represents a sample, not necessarily random, of about one-third of all of the life insurance in force on lives 20 or older for the experience period, 1950-1954. This period actually only includes four policy years and is measured by starting with the anniversary date of the policy falling in 1950 and ending with the anniversary date in 1954.

For ages 20 and older the rates were based on the data for ordinary standard issues of fifteen large companies with war deaths excluded. However, in no case was experience on policies of less than 5 years duration included. This was done to minimize the effects of selection. The data were combined to produce annual death rates at certain central attained ages as indicated in Table 2. The experience contained male and female exposures mixed in unknown proportions, which has led to certain problems and criticisms concerning the application of the table. These will be discussed below.

TABLE 2
MORTALITY EXPERIENCE EXCLUDING THE FIRST FIVE POLICY YEARS OF 15 LARGE COMPANIES BETWEEN 1950 AND 1954 ANNIVERSARIES

Age	*Death Rate per 1000*	*Age*	*Death Rate per 1000*
22	.99	62	21.17
27	.97	67	32.92
32	1.10	72	51.40
37	1.66	77	74.02
42	2.98	82	112.64
47	4.93	87	160.98
52	8.21	92	224.34
57	13.22		

Source: Sternhell, *Op. cit.*, p. 5.

For ages less than 20 the actuaries relied heavily on the data of Equitable, Metropolitan, New York Life, and Prudential. This experience was combined with the general inter-company experience collected by the Society of Actuaries for ages 10 to 19, and death rates were derived for ages 0 to 19.

Before adding the safety margins the actuaries decided to eliminate the dip in mortality which occurs at age 27, as indicated in Table 2. Otherwise inconsistencies in net premiums and reserves would result. This dip, which has been evident in the census data since 1943, is found almost exclusively in the white male experience.

In order to determine adequate safety margins to be loaded on to the experience rates, the committee called for data from

[10] Guertin, Alfred N., "The New Mortality Table," *Best's Insurance News: Life Edition* (July 1957), p. 17.

[11] For a more complete discussion of the sources and construction of the X_{17} table see Sternhell, *Op. cit.*, pp. 1-23 and the *Transactions of the Society of Actuaries*, Vol. VIII (1956), pp. 521-534.

33 companies which did not contribute to the original experience. The mortality variation of these companies, as well as individual variations of the original 15 companies from the average, was then computed. The analysis indicated that the variation was greatest at the youngest and oldest ages and least in the middle age ranges. It was decided to add margins which would cover about 90 per cent of the individual company deviations. Thus only 10 per cent of the 48 companies would show mortality rates higher than the loaded rates. The following pattern of margins was finally adopted: [12]

1. A flat 15 per cent margin was used at ages 52 to 92.
2. The 15 per cent margin at age 52 is equivalent to a margin of 1.23 deaths per 1,000, and this constant margin was graded down to a value of .24 per 1,000 at age 12 and then up to a value of .65 per 1,000 at ages 1 and 0.

Thus a maximum percentage loading of approximately 80 per cent is found at age 17, with this percentage decreasing both above and below that age. The X_{17} table shows an average percentage loading of about 17 per cent over the X_{18} table, which is an experience table based on the data of the original 15 companies.

The loaded rates at five-year age intervals were then interpolated by a fifth difference formula to produce graduated rates at every age. As was done with the CSO table, the mortality rate at age 99 was set equal to 1.00; and rates from 92 up were graduated so as to make a smooth progression to the end of the table.

The finished product exhibits some interesting characteristics when compared with the 1941 CSO which historically is a modern table. Table 3 indicates the rates of the two tables and the percentage decrease between them at five year age intervals throughout the entire range of both tables. First it can be observed that there is a substantial decrease in the X_{17} death rates as compared with those of

TABLE 3

MORTALITY RATES FROM THE 1941 CSO AND X_{17} TABLES AND THE PERCENTAGE DECREASE IN RATES

Age	1000 q_x		% Dec.	Age	1000 q_x		% Dec.
	CSO	X_{17}			CSO	X_{17}	
0	22.58	6.98	69	50	12.32	7.84	36
5	2.76	.80	71	55	17.98	12.55	30
10	1.97	.60	70	60	26.59	20.20	24
15	2.15	1.00	53	65	39.64	31.75	20
20	2.43	1.46	40	70	59.30	49.79	16
25	2.88	1.59	45	75	88.64	73.37	17
30	3.56	1.82	49	80	131.85	109.98	17
35	4.59	2.25	51	85	194.13	161.14	17
40	6.18	3.30	47	90	280.99	228.14	19
45	8.61	5.06	41	95	396.21	351.24	11

Source: *Transactions of the Society of Actuaries*, Vol. VIII (1957), p. 524.

1941 CSO. The decrease ranges from 11 to 71 per cent at the extreme ends of the tables, and the percentage differences tend to become less as the age increases. This is in keeping with the fact that during the past twenty years improvements in mortality have been greatest at the younger ages. Taken as a whole the decrease in mortality from 1941 CSO to X_{17} is about 35 per cent.

Since net premiums are directly related to the level of mortality, the X_{17} will produce substantially lower net premiums than the 1941 CSO. The net premiums based on both tables at 2½ per cent interest at certain selected ages and the percentage decreases are shown in Table 4. The percentage decrease in net

TABLE 4

NET PREMIUMS FOR ORDINARY LIFE BASED ON THE 1941 CSO AND X_{17} TABLES AT 2½ PER CENT INTEREST AND PERCENTAGE DECREASES

Age (X)	Net Premium (P_x)		% Decrease
	CSO	X_{17}	
10	9.36	$ 7.77	17
20	12.49	10.54	16
30	17.22	14.60	15
40	24.65	21.19	14
50	36.90	32.20	13
60	58.18	51.49	11

Source: *Transactions of the Society of Actuaries*, Vol. VIII (1957,) pp. 526-527.

[12] Sternhell, *Op. cit.*, p. 13.

premiums indicates roughly the possible rate cut which could be affected as a result of the substitution of the new table, since the companies, recently held at bay by the deficiency reserve laws, could now drop their gross premiums down to the net premiums as based on the X_{17}. This, however, is highly unlikely since premiums at this level would probably not include an adequate expense loading. In any event, the X_{17} net premiums would represent the new definition of minimum rates. When and if gross premiums drop to that level, a deficiency reserve problem would arise again.

As to the impact of the X_{17} on reserves, the figures indicate, based on certain model office distributions,[13] that aggregate reserves on X_{17} will run from 2½ to 3 per cent lower than those based on CSO if a 2½ per cent interest assumption is used. It must be remembered that reserves are not related to the level of mortality, but rather to the slope or rate of increase of the mortality curve. As a generalization: the steeper the slope the greater the reserves. Figure 1 pictures the mortality curves based on both CSO and X_{17}. From this figure it is clear that in general the shape of the two curves is the same but that the slope of the CSO table is slightly steeper, i.e., the rate of increase is greater. This accounts for the small differential in reserves between the two tables. While the percentage difference is small, when it is applied to aggregate reserves of U.S. companies, it could mean a decrease in reserves and, presumably, an increase in surplus of from 2 to 2½ billion dollars.

During the past two years the new table has evoked a great deal of discussion both pro and con. There is no doubt that the X_{17} table accomplishes the task for which it was designed in that it does eliminate the deficiency reserve problem. However, it is possible that this solution is only temporary; and it may be necessary for the actuaries to make new mortality tables every five or ten years in order to remain up-to-date. This suggestion is not too popular, however, since it opposes tradition and since it could result in an almost limitless variety of valuation bases which would confuse rather than clarify the reserve picture.

The attitudes of the various segments of the industry toward the X_{17} table vary directly as they are concerned with a deficiency reserve problem. Thus the large mutuals which face no deficiency reserve problem are indifferent to the adoption of the new table. In the Spring of 1955 the actuaries of Prudential, Metropolitan, and Equitable stated that they thought that there was no need for the adoption of a new mortality table for valuation purposes.[14] On the other hand, most of the large stock companies are in favor of the X_{17} table.

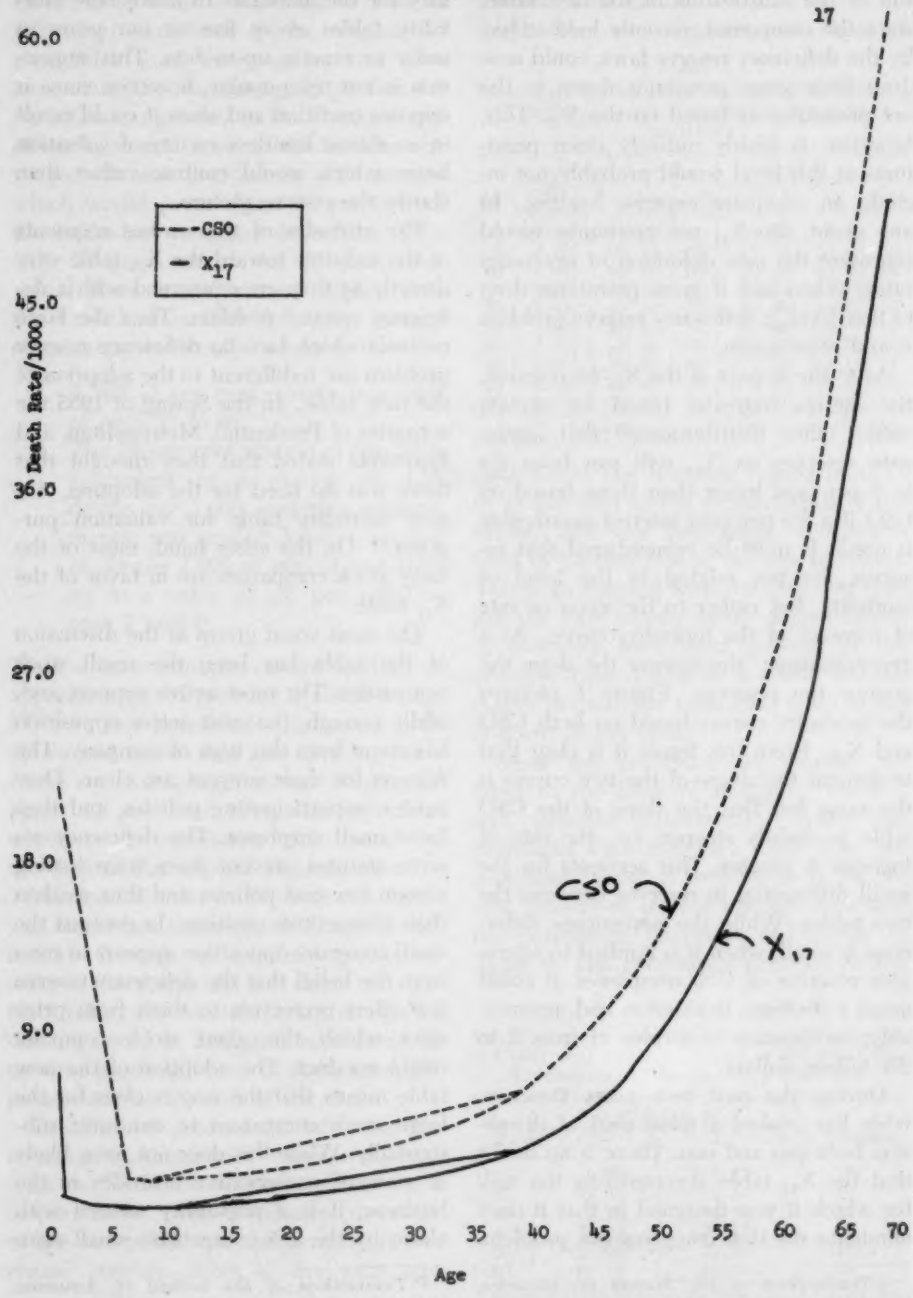
The most vocal group in the discussion of the table has been the small stock companies. The most active support and, oddly enough, the most active opposition has come from this type of company. The reasons for their support are clear. They issue non-participating policies, and they have small surpluses. The deficiency reserve statutes prevent them from issuing certain low cost policies and thus weaken their competitive position. In contrast the small company opposition appears to stem from the belief that the deficiency reserve law offers protection to them from price wars which the giant stock company might conduct. The adoption of the new table means that the way is clear for the large stock companies to cut rates substantially. While this does not seem likely in view of conservative attitudes in the business, it is a possibility viewed with alarm by the less competitive small com-

[13] *Transactions of the Society of Actuaries*, Vol. VIII (1957), p. 533.

[14] *Transactions of the Society of Actuaries*, Vol. VII (1956), pp. 89-92.

FIGURE 1

MORTALITY CURVES BASED ON THE C.S.O. AND X_{17} TABLES



panies. Another deterring factor is that of cost. One actuary estimates the cost of producing a new rate book and all other necessary material for a single company at $50,000.[15]

In addition to the foregoing criticisms relating to the effects of adopting the new mortality table, there has been much criticism of the table per se. First, it has been argued that the experience period, 1950-1954, is unrealistic and too short. Opponents claim that all factors were favorable in this period and that it is dangerous to assume that the low levels of mortality will be maintained. They suggest an experience period of 15 years covering bad times as well as good. Second, the table is critized because it contains unknown proportions of male and female lives. If it is used as a male table, which is most likely, it may prove inadequate since it does contain some female experience which is known to be better than male. However, the influence of the female exposure, which can be estimated at between 5 and 15 per cent, is probably negligible. Third, it is claimed that the sample of 15 companies is too small and non-representative. No one thus far has offered any supporting evidence for this point, and in any case the real question is whether the final table is representative or not. A fourth criticism is that the table produces unrealistic extended term periods under the non-forfeiture provisions. The companies, when determining extended term benefits, are permitted to use 130 per cent of normal mortality. Supporters of the table say that this is adequate; opponents say it is not.

On the whole, majority opinion seems to be that the new table is adequate in that it accomplishes the objectives for which it was intended. Any table is subject to some criticisms, and no table can satisfy all of the diverse requirements of the insurance business all of the time.

Conclusions

1. The deficiency reserve problem results from improvements in mortality in the past two decades, combined with reserve valuations based on an out-dated mortality table.

2. The problem affects primarily small stock companies when issuing term and ordinary life contracts.

3. The deficiency reserve laws are unsatisfactory since they discriminate against certain segments of the industry and lead to inconsistent results.

4. The substitution of an up-to-date mortality table as a permissive standard of valuation is considered by the industry the most practical solution to the problem in the short run.

5. The X_{17} table would satisfactorily meet the deficiency reserve problem, though perhaps only temporarily.

[15] Estes, E. Forrest, *1957 Proceedings of the National Association of Insurance Commissioners*, Vol. I, p. 156.

IS A NEW MORTALITY TABLE NEEDED?

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One of the most controversial subjects in the life insurance business today is the question of whether a new mortality table is needed for ordinary insurance and, if so, whether Table X_{17} is the answer. This question has been discussed at various meetings of the Society of Actuaries, the American Life Convention, and the National Association of Insurance Commissioners. Unfortunately, much of the discussion on this topic has stemmed from the points of view of individual life insurance companies who feel that the adoption or nonadoption of a new table would have some effect on their competitive position. As a result, much of the discussion has generated more heat than light on the subject.

Because of the importance of this matter and because an impartial review of the problem appears vitally necessary, the author will examine the effects of a new mortality table and the various arguments pro and con.

History

The mortality table universally used in ordinary life insurance for reserves, nonforfeiture values, and for most other purposes, is the Commissioners 1941 Standard Ordinary Mortality Table (CSO). This table was constructed from the mortality experience on ordinary life insurance between 1930 and 1940. The table became a valuation standard in 1948.

Since 1948 two conditions affecting the use of the CSO Table have changed. First, mortality has improved tremendously. Mortality rates at practically all ages declined during the period, 1943 to 1947, to about 90 per cent of their 1939-1943 level. From 1947 to 1951 a further substantial decline took place, and by 1951-1955 mortality experience ranged from 58 per cent of the 1939-1943 mortality experience at ages 25 to 29 to about 85 per cent at ages 70 and over.[1]

The second major influence on the life insurance business in recent years has been the tremendous growth of price competition among life insurance companies. Before World War II only a few companies issued "special" or high minimum amount policies. Now most insurers issue such contracts. The high minimum amount permits a company to achieve low unit expenses and hence to charge a lower premium on this policy, thereby improving its competitive position. The increasing use by participating companies of terminal dividends is also a sign of the increased competitive pressures. Some have characterized this as a "rate war."

Because of the decreased mortality, coupled with a desire to be competitive, many non-participating life insurance companies have begun to cut premiums substantially. These rate reductions have frequently not been "across the board," but have instead concentrated on certain plans of insurance, mainly the high minimum amount plans. According to some recent advertisements in the *National Underwriter*, some companies are charging

[1] Society of Actuaries, "1956 Reports of Mortality and Morbidity Experience," page 15.

premium rates at age 35 for high minimum amount ordinary life policies as low as $17.98 per thousand, non-par.

A company which decides that it can safely charge a rate as low as that stated above comes into conflict with insurance law governing deficiency reserves. The laws of 34 states require deficiency reserves when the gross premium is less than the net premium according to the company's valuation standard. For example, Section 206 of the New York Insurance Law says, "When the actual premium or consideration charged for life insurance under any life insurance policy . . . issued by any life insurance company doing business in this state, is less than the net premium required on the basis of the standard adopted by such insurer for the valuation of such policy or contract or on the basis of the minimum standard therefore described by Section 205, whichever shall be higher, such insurer shall be charged as a separate liability with a deficiency reserve equal to the total present value of the future deficiencies in the actual premium or consideration, calculated on the same basis."

Since the CSO net premium at age 35 at 2½ per cent interest is $20.50 and at 3 per cent interest is $19.13, it is apparent that a company charging a gross premium as low as the above quoted $17.98 must set up quite a substantial deficiency reserve. For every dollar that its gross premium at age 35 is below the net premium according to its own valuation standard, a company must set up a deficiency reserve of approximately $22. If, therefore, its gross premium were $17.98 and it were valuing on CSO 2½ per cent with a net premium of $20.50, its deficiency reserve might be about $56 per thousand of insurance. The magnitude of this problem is shown by the fact that one large non-participating company had to put more than one-half of its 1956 earnings into deficiency reserves. It is apparent that a small company without a large surplus to draw on might, by writing too much business on a plan with a low gross premium, become insolvent solely because of having to put up the deficiency reserves.

A subcommittee of the Life Insurance Association of America and the American Life Convention was appointed to consider the deficiency reserve problem. In June, 1956 a request was made to the National Association of Insurance Commissioners that it study the question of deficiency reserves; and a subcommittee composed of seven insurance department actuaries was appointed to look into the problem. Since the Life Insurance Association of America and American Life Convention subcommittee had decided that it would probably be impractical to attempt to have the deficiency reserve requirement changed or repealed, it requested the Society of Actuaries to appoint a committee to draw up a modern mortality table. A modern table, because its net premiums would be lower than CSO, would obviate the need to set up deficiency reserves for most companies.

The mortality table constructed by the Society of Actuaries committee was presented to the Society at its meeting on November 13, 1956 and was subsequently submitted to the National Association of Insurance Commissioners. This has been called Table X_{17}, although it will probably be called the Commissioners 19—Standard Ordinary Mortality Table when and if adopted by the National Association of Insurance Commissioners.

At the same time that it constructed Table X_{17}, the Society of Actuaries committee constructed another mortality Table X_{18}, which represented the actual mortality experience underlying Table X_{17}.

Since the major problem which created the need for a new mortality table was solely one affecting non-participating in-

surance companies (participating companies are not affected by deficiency reserve requirements since the deficiency reserve requirement applies only to the gross premium and participating gross premiums are always higher than valuation net premiums), the participating companies at first did not express opinions on the new table. As things have developed, however, it appears that the table, if adopted, will probably apply to both participating and non-participating insurance. As a result, some of the participating companies are beginning to take a second look at the new table; and a few of them are not completely satisfied with it.

In addition to the possible opposition from participating companies, some non-participating companies have also voiced objections to the new table. Certain small non-participating companies are afraid that the adoption of a new mortality table, by obviating the need to set up deficiency reserves, will enable the large non-participating companies to further reduce gross premium rates, intensifying the rate war.

The CSO Table

The CSO Table was constructed in 1941 by the Committee to Study Non-Forfeiture Benefits and Related Matters, which had been appointed by the National Association of Insurance Commissioners. The table was constructed from the mortality experience of 16 large life insurance companies on policies issued from 1925 to 1934, observed from their fifth policy anniversary until 1940. After an "experience" table had been constructed, a contingency loading of .05 times the reciprocal of the expectation of life was added at each age. The contingency loading ranged from .77 deaths per 1,000 at age 2 to 1.07 at age 22, 2.05 at age 47, 4.73 at age 67, and higher amounts at the older ages.

The CSO Table is now obsolete. In fact, the CSO Table is now as out of date as the American Experience Table was 15 years ago. The main reason for this is the tremendous improvement in mortality during the past 15 years. After all, the CSO Table was based on experience from 1930 to 1940, which means that the mid-year of its experience period was 1935. That is 24 years ago.

An indication of the extent to which the CSO Table is out of date can be obtained from Table 12 in a paper by Charles M. Sternhell entitled "The New Standard Ordinary Mortality Table."[2] This table shows the ratio of actual to expected mortality experience, excluding the first five policy years, based on the CSO Table. The ratio of actual to expected mortality for 15 large companies ranges from 59.9 per cent to 67.7 per cent of CSO. The mortality ratios for 33 smaller companies, shown in his Table 13, range from 32 to 69 per cent of CSO. If the first five policy years were not excluded, much lower ratios would result. For example, the president of one company recently stated that his firm is experiencing mortality equal to 40 per cent of CSO by number of policies and 44 per cent by amounts of insurance. When mortality ratios are this low, it is time to think about changing the underlying table.

It seems to this writer that the continued use of the CSO Table will also produce a serious public relations problem and lead to the impression on the part of some people that insurance companies are not being fair with the general public. This will be especially true when they see that the CSO Table shows much higher mortality rates than the 1949-51 U.S. population tables. It is not so easy to defend this fact in discussion with an intelligent layman and in a classroom full of graduate students. It seems obvious

[2] Sternhell, Charles M., "The New Standard Ordinary Mortality Table," *Transactions of the Society of Actuaries*, Volume IX, p. 1.

that a table reflecting the mortality experience of carefully selected lives, subject to a medical examination and other underwriting procedures, should show lower mortality than a table based on general population data.

Table X_{17}

In order to construct a new mortality table the Society's committee turned to the data contributed each year to the Society of Actuaries Mortality and Morbidity Committee. On the basis of the 1950-54 mortality experience of 15 large companies an underlying table, called Table X_{16}, was constructed. The actuaries felt that it would be desirable to add a contingency margin to this table, just as a similar margin was added to the CSO Table when it was constructed. However a different procedure was used.

Data were obtained from 33 smaller companies; and their experience was compared in each five year age group with that of the 15 large companies. It was found that in each age group a few companies had experienced mortality rates much higher than the others. These chance fluctuations were ignored. Margins were adopted that would provide for the mortality actually experienced in each age group by all the other companies. On the average the adjusted mortality rates in Table X_{17} cover about 90 per cent of the individual company mortality rates in each age group. In the aggregate the actual 1950-54 mortality of each of the 48 companies is provided for; the company with the highest mortality had a ratio of actual to expected deaths by Table X_{17} of only 95 per cent. Thus Table X_{17} is based on the mortality experience of 48 companies.

The margins finally adopted were 15 per cent at ages 52 to 92, with higher percentage margins at other ages. A complete description of the manner in which Table X_{17} was constructed is given by Sternhell in his paper mentioned above.

The actuarial committee worked hard on Table X_{17} and appears to have done an excellent job. However, the table does have some definite defects. For one thing, the table is based on an experience comprising unknown proportions of male and female lives. It would be much better to have an all male table. This is especially important now since the practice of rating down females several years when they purchase life insurance seems to be a permanent aspect of the life insurance business. Females have always received reduced benefits under annuities and settlement options as compared with males of the same age because their lower mortality results in greater cost to the company. The same logic dictates that women should pay lower life insurance premiums.

Until recently the companies' counter to the above argument was that the lower mortality of women was offset by a lower average size life insurance policy, which resulted in a higher unit expense rate. However, companies have now discovered that by requiring a certain minimum size policy they are able to eliminate this expense differential and can offer life insurance at lower rates to women than to men. Since this seems to be the trend in the industry, X_{17} should have been an all male table since this would have made it much easier to determine how much of a discount women should be given.

Some people question the margins at the young adult ages. The margins at these ages are modest in terms of dollars and cents but are quite high percentagewise. The young ages comprise the area where both the American Experience and the CSO Table are most redundant; and if mortality at these ages continues to improve, Table X_{17} may also be redundant. However, a large proportion of the deaths at ages under 30 are due to accidents; and mortality from this cause may not decrease rapidly.

Despite its defects, however, there seems to me to be no question that Table X_{17} is sufficiently conservative and has ample margins for reserve purposes. It represents a great improvement over the CSO Table. The margins contained in Table X_{17} represent less than one-third of the redundancy in the CSO Table.

The mortality rates of Table X_{17} are lower than those of the U.S. White Males 1949-51 Table. This is an important matter from the public relations point of view. The author wishes it were as sure that Table X_{17} would be below the 1959-61 U.S. White Males Table which will be published some four or five years hence.

Table 1 compares the mortality rates on Tables X_{17} and X_{18} with CSO and with the 1949-51 White Males Table at quinquennial ages from 2 to 92. No attempt is made to compare rates at ages above 92 since these are always artificially graded into a mortality rate of 1 at a predetermined terminal age—99 for CSO and X_{17} and 100 for X_{18}. Ages 0 and 1 are also not shown since they represent different things; in Table X_{17}, for example, the mortality rate at age 0 excludes the first day of life, hence is considerably lower than that on a population table where all infant deaths would be included.

TABLE 1

COMPARISON IF THE RATE OF MORTALITY ($1{,}000q_x$) BY VARIOUS TABLES, BY QUINQUENNIAL AGE

Age	*CSO*	*U.S. White Males 1949 - 51*	X_{17}	X_{18}
2	4.14	1.38	1.29	0.78
7	2.47	0.68	0.67	0.43
12	1.92	0.67	0.67	0.43
17	2.25	1.33	1.25	0.67
22	2.59	1.74	1.52	0.89
27	3.11	1.69	1.66	0.98
32	3.92	2.01	1.96	1.18
37	5.15	2.94	2.56	1.68
42	7.03	4.77	3.93	2.95
47	9.91	7.71	6.00	4.92
52	14.30	12.12	9.44	8.21
57	21.00	18.82	15.20	13.22
62	31.18	27.72	24.28	21.12
67	46.56	40.00	38.04	33.08
72	69.66	58.87	58.65	51.00
77	103.99	87.89	85.70	74.52
82	154.16	128.02	129.17	112.32
87	225.63	188.98	185.13	160.98
92	323.64	257.66	265.93	231.24

There has been some criticism of Table X_{17} on the grounds that only a five-year select period was used whereas some actuaries feel that a 15-year select period would be more logical. An exploration of this point indicates something interesting about today's life insurance. In his reply to the discussion of his paper, Sternhell [3] indicated that the select experience does not grade into the ultimate experience at any duration. The reason he gave for this is interesting. He stated that selection procedures apparently improved considerably during the 1930's and that therefore the standard insurance policies issued after 1930 represent a more select group than those policies issued before 1930. It appears that policies issued after 1930 will never experience the ultimate mortality rates shown in current experience for ages 16 and over. This being the case, it makes more sense to use a five-year select period than it would to use a 15-year select period in constructing a new mortality table, since a 15-year select period would exclude all policies issued since 1942 and a table so constructed would not be satisfactory as a measure of future mortality.

Furthermore, the use of a 15-year select period would result in a table with higher mortality rates. This would be conservative in that a smaller contingency margin, or perhaps none at all, would have to be built into the table. The same effect could have been achieved by using a longer period of experience, say 1946 to 1954. It is claimed by some people that such conservatism would be desirable. A rebuttal of this view is found in the 1941 "Report of the Committee to Study Nonforfeiture Benefits and Related Matters":

> The process of using tables based upon old experience so long as mortality con-

[3] *Op. cit.*, page 209.

tinues to improve may be relied upon to provide contingency margins which are necessary in life insurance calculations. However, such margins do not always occur at ages where they are most needed, nor do they always meet all the requirements necessary in the establishment of such margins. The Committee has determined therefore to recognize this situation by the construction of a table based on the latest available experience and to determine in advance the margins which it deems to be proper in connection therewith.[4]

This comment appears pertinent today. Since the purpose of a mortality table is to predict future experience, rather than simply to represent past experience, the latest available data should be used, as these will be the best guide for the future. Such contingency margins as are deemed necessary should then be specifically added.

Premiums

The effect on premiums of a new mortality table needs to be considered. Net premiums would, of course, be reduced. At age 35, on the ordinary life plan, the net premium on Table X_{17} at 2½ per cent interest is $17.48 as compared with the CSO net premium of $20.50, or a reduction of 15 per cent. On a 20-payment life policy issued at the same age, the X_{17} 2½ per cent net premium is $27.00 as compared with the CSO net premium of $30.30, or an 11 per cent reduction. At other ages the situation is quite similar. Table 2 compares net premiums for selected ages and plans on Tables X_{17}, X_{18}, and CSO.

As mentioned above, some of the opposition to a new mortality table comes from smaller non-par companies whose management personnel are afraid that the lower net premiums on a new table would permit the larger companies to reduce gross premiums, thus intensifying the rate war. This might come about since the principal effect of the lower net premiums on X_{17} would be to eliminate the need for deficiency reserves. However the need to set up deficiency reserves doesn't seem to have restrained some companies from reducing gross premiums. Many companies are already quoting gross premiums well below CSO net premiums.

TABLE 2

NET ANNUAL LEVEL PREMIUMS FOR SELECTED AGES AND PLANS, 2½ PER CENT INTEREST, ACCORDING TO VARIOUS MORTALITY TABLES

Plan	*Issue Age*	*C.S.O.*	X_{17}	X_{18}
Ordinary Life	5	8.28	6.72	6.14
	20	12.49	10.54	9.69
	35	20.50	17.48	16.27
	50	36.90	32.20	30.00
20 Pay Life	5	16.18	13.62	12.64
	20	21.76	19.16	17.95
	35	30.30	27.00	25.66
	50	44.58	40.28	38.44
20 Year Endow.	5	39.44	38.64	38.46
	20	39.87	39.11	38.73
	35	41.98	40.29	39.76
	50	49.67	46.40	45.30
20 Year Term	5	2.25	.96	.57
	20	3.46	1.83	1.12
	35	8.28	4.97	3.98
	50	24.33	18.71	16.39

It does not appear to this writer the adoption of a new mortality table will lead to a wholesale cutting of premium rates by non-par companies. Most of the more aggressive companies have already reduced premiums to as low a level as they consider safe. If the adoption of a new table should tempt certain of the smaller companies to emulate the larger ones and reduce premiums further, it is hoped that they will avail themselves of competent actuarial advice and will not make reductions which will later prove to be ill-advised.

Expense Margins

Strangely enough, one of the arguments sometimes raised against Table X_{17}

[4] Report of the Committee to Study Non-Forfeiture Benefits and Related Matters, National Association of Insurance Commissioners (September, 1941), p. 136.

is the fact that the margins are not adequate for expenses. This appears to be expecting a mortality table to do something that it was never designed to do. All a mortality table can do is to produce net premiums. They must always be loaded for contingencies and to cover company expenses. It is purely fortuitous that the American Experience Table and the CSO Table today are so redundant that the net premiums on these tables have a margin which, for some plans and ages, is sufficient to cover company expenses as well as mortality costs. This seems to have led some people to expect companies always to be able to charge net premiums.

It is undesirable for a mortality table to be loaded heavily enough to cover expenses and contingencies. No scale of premiums nor reserve basis obviates the necessity for a company to accumulate a surplus or contingency reserve adequate to meet such unforeseen contingencies as wars, epidemics, and temporary periods of high mortality. If the net premium is not sufficient to accumulate a contingency fund, a specific loading may be necessary. Furthermore, the present trend seems to be for expenses to increase while mortality improves, resulting in the expense portion of the premium becoming more and more important and the mortality portion somewhat less so. Under these circumstances it behooves a company, especially a small one, to take extra care to be sure that its premium loading is adequate to cover its expenses.

In support of the view that too much should not be expected from a mortality table, a portion of the report of the Committee to Study the Need for a New Mortality Table and Related Topics might be cited: "The Committee is of the opinion that regardless of any changes which might be made in a valuation standard, the operating margins likely to arise in a single year cannot be depended upon to meet such contingencies and that adequate surplus funds must be accumulated out of premium income over periods of years to provide for them."

The suggestion has also been made that instead of Table X_{17}, an unloaded table such as X_{18} be used as a valuation standard. Such a suggestion was motivated by the fear that some companies, acting without competent actuarial advice, might assume that the margin of Table X_{17} is adequate to cover its expenses as well as mortality and might foolishly endeavor to charge X_{17} net premiums. An unloaded table, clearly labeled as such, would put a company on notice that a loading for expenses and contingencies is necessary, and this might result in the loading being calculated with at least some regard to actual company expenses.

Participating Gross and Net Premiums

It is interesting to speculate about the possible effects of the adoption of a new table on participating gross premiums. It is quite possible that lower gross participating premiums would result with a compensating reduction in dividends. Of course, it is also possible that participating companies might choose not to use a new mortality table for premium computations even if it were made a valuation standard.

One of the questions which confronts the actuary of a participating company in deciding whether or not to use a new mortality table, or whether or not to support the adoption of Table X_{17} as a valuation standard, is the effect that it will have on dividends. Dividends of participating companies are, of course, largely based on three sources: excess interest earnings, mortality savings, and expenses lower than the premium loading. Participating companies generally try to calculate their gross premiums so that the margins from these three sources will be approximately the same, the so-called

"three-legged stool" approach. The adoption of a new table might make this somewhat difficult in that the mortality margins would be cut substantially in comparison with those now experienced under the CSO Table. However, it appears that there would be considerable advantage in basing premiums on a table which follows the actual incidence of mortality by age. The margin in Table X_{17} over current actual mortality experience is roughly the same percentage at all ages over 50. However the margin expressed in deaths per 1,000 increases from age to age. In contrast, the margins in the CSO Table are rather erratic. Thus Table X_{17} may make it easier rather than more difficult to produce an equitable dividend scale. The fact that the CSO Table is so out of date may create difficulties for some companies in ensuring the equity of dividend distribution as between various ages and plans.

Group Insurance

The adoption of a new mortality table as a valuation standard would have repercussions in areas other than ordinary insurance. For example, the minimum group life insurance rates established by the states of New York, Michigan, and Ohio are based on the CSO Table. It would seem that if Table X_{17} were adopted as a valuation standard for ordinary insurance, it would probably be necessary to revise the group minimum rates as well. However, there is no justification for assuming that the valuation standard for ordinary insurance is necessarily a satisfactory basis for group minimum premiums. It would be much more sensible for the group life insurance business to construct its own mortality table based upon group insurance statistics. Some study is being given to this question.[5]

[5] *Transactions of the Society of Actuaries*, Volume IX, pp. 41-43.

Reserves

If a new mortality table were adopted because the CSO Table is outmoded and needs to be replaced, rather than simply to solve the deficiency reserve problems of certain companies, this logically requires that the new table be made a mandatory rather than a permissive valuation standard. However, the 1956 proposal of the Life Insurance Association of America and the American Life Convention was that any new table should be adopted on a permissive basis. Legislation to this effect has already been passed in New Jersey. Actuaries always like to have valuation standards permissive rather than mandatory. When the American Men Table was prepared in 1920 to replace the American Experience Table, it was proposed on a permissive basis. When the CSO Table was constructed in 1941, the Guertin Committee recommended that it be merely one of several approved tables that could be used for reserves and nonforfeiture benefits.

While it would be nice for the insurance companies and their actuaries to have considerable freedom in the matter of valuation standards, this has not been the practice in this country. In both Canada and Great Britain the actuary of a company has broad latitude in choosing his valuation mortality table and interest rate. In the United States, however, the tradition is for state law to specify a minimum valuation standard and then to permit a company to use any basis which produces reserves greater than the minimum. For example, Section 205, subsection 3-a of the New York Insurance Law specifies that the CSO Table at 3 per cent interest shall be the minimum valuation standard for ordinary policies. Section 208-a is equally specific for nonforfeiture benefits, stipulating that "All adjusted premiums and present values referred to shall be calculated on the basis of the Commissioners 1941 Standard Ordinary

Mortality Table for ordinary insurance."

Adherence to this philosophy (and the writer doubts whether state legislatures would be amenable to allowing more freedom) would require that some table other than the CSO be made the mandatory minimum valuation standard for policies issued after a certain date. However, the CSO Table produces higher reserves than X_{17}, not only in the aggregate but also for nearly every age, duration, and plan. Since companies are free to use a table which produces higher reserves than the minimum, it would probably be permissible for a company to continue to use the CSO Table if it wished to do so.

The establishment of a new table as a permissive valuation standard has one definitely undesirable effect; a company may use the new table as a valuation basis for certain plans of insurance and not for others. This would permit a company to use the new table as a valuation standard only on those policies where it has deficiency reserve trouble, while leaving the balance of its business on CSO. It would be difficult to justify this procedure from any actuarial or equitable point of view; it would be a purely competitive device.

It seems unlikely that any insurance department would change its valuation standard in order to give certain companies a competitive advantage. Any change must be argued on a higher plane than this. It would have to be shown to be more equitable and in the interest of the body of policyholders as a whole rather than only for the benefit of a certain selected class such as those who buy a "special" policy. The new table should be used as a valuation standard either on all policies or on none. This can only be achieved by making it mandatory rather than permissive. Under no circumstances should a company be permitted to use a new table for only one plan of insurance.

Nonforfeiture Values

There is no actuarial reason why reserves and nonforfeiture values must be calculated on the basis of the same mortality table or interest rate. The reserve is the aggregate amount needed by the company to meet its future obligations and must be computed on a conservative basis. Reserves measure the future liabilities of the company and should be viewed prospectively. They must be sufficient to keep the company solvent.

Nonforfeiture values represent the individual equity of a withdrawing policyholder in the funds held by the company. Theoretically, nonforfeiture values should be calculated retrospectively taking account of actual mortality, interest, and expense rates. Nonforfeiture values represent the accumulation of past premiums less expenses, and less the actual cost of insurance from the date of issue of a policy to the date of surrender. They should be determined by realistic asset-share calculations. This point of view is argued at length in the 1941 "Report of the Committee to Study Nonforfeiture Benefits and Related Matters," of the National Association of Insurance Commissioners.

From a theoretical point of view the above arguments are correct, and an actuary might well achieve more equitable nonforfeiture values by using both a mortality table and an interest rate different from those assumed for reserves. Unfortunately, however, this flexibility could only be achieved at the cost of the state relinquishing some of its control over surrender values. While the use by a company of a modern mortality table for reserves without changing its nonforfeiture values might produce more equity in some cases, it might also open the door to possible abuses.

It is this writer's belief, therefore, that if a new table is used for valuation, it must inevitably become the basis for non-

forfeiture values as well. In fact, it may be more important to use a modern table for nonforfeiture values than for reserves in order to ensure equity between persisting and withdrawing policyholders.

While the actuarial committee which constructed Table X_{17} presented it as suitable for use as a permissive valuation standard, the members of the committee had in mind the possibility of its being used for nonforfeiture values. It was their feeling that Table X_{17} would be adequate for this purpose.[6] If another table is adopted in place of X_{17}, the question of its suitability for nonforfeiture benefits must of course be considered.

Certain problems arise when a modern mortality table is used for surrender values. For example, it is frequently not realized what a tremendous margin there was in both the American Experience and the CSO Tables, as compared with a modern table, when it comes to calculating extended term insurance. Compare the amount of extended term insurance provided by the full net level 2½ per cent terminal reserve on a $1,000 ordinary life policy surrendered at the end of ten years under the American Experience, CSO, and X_{17} tables:

Issue Age	*20*	*35*	*50*
American Experience	12 years, 176 days	13 years, 180 days	9 years, 29 days
C.S.O.	23 years, 101 days	15 years, 251 days	9 years, 27 days
x_{17}	29 years, 119 days	19 years, 101 days	10 years, 235 days
Per Cent Increase			
C.S.O. over Amer. Exp.	86 per cent	16 per cent	0 per cent
x_{17} over C.S.O.	26 per cent	23 per cent	17 per cent

It can be seen that the adoption of Table X_{17} would lead to a substantial increase in extended term periods at the younger ages and a somewhat lesser increase at older attained ages.

Although satisfactory figures indicating the extent of anti-selection on extended term insurance have not been seen by the author, there is certainly no question that some anti-selection exists, especially when extended term is not the automatic option. Most of this anti-selection appears in the first policy year after election of extended term, and perhaps the proper mortality basis for extended term insurance would be something like 200 per cent of standard mortality for the first policy year and 100 or 110 per cent thereafter. However, the standard nonforfeiture law meets this problem somewhat differently; it allows the use of 130 per cent of tabular mortality in calculating extended term insurance.

The use of 130 per cent of tabular mortality to compute extended term insurance benefits leads to certain practical problems. For example, the extended term option and reduced paid up insurance option should produce consistent results; and the use of 130 per cent of tabular mortality for extended term might produce inconsistencies, especially at late durations of an endowment policy where a pure endowment benefit is involved. There would also be certain inconsistencies when a limited payment life policy is surrendered shortly before the date it would have become paid up. For these and other reasons, most companies do not use the 130 per cent factor for extended term insurance, and many have adopted the automatic premium loan provision. Of the 70 life insurance companies operating in New York State, the writer knows only one which uses 130 per cent of CSO mortality for extended term insurance.

Another important problem which must be faced is that of expenses on reduced paid up and extended term insurance. The figures presented above indicate the

[6] *Transactions of the Society of Actuaries*, Volume VIII, p. 514.

margins which were available under the American Experience and CSO Tables, on a net basis, when used to buy extended term insurance. The situation is, of course, similar for reduced paid up insurance. On these older tables the margins in the tabular mortality rates over actual experience were ample to provide for the expense of handling nonforfeiture insurance benefits. Under a modern table, some other solution must be found.

At present the standard nonforfeiture law requires that extended term and reduced paid up insurance be actuarially equivalent to the cash value at net rates. This would be particularly burdensome under a new table at the young ages, in particular at juvenile ages. One solution which has been proposed is to artificially increase the tabular mortality rates at young ages to provide sufficient margins for the expense of handling nonforfeiture benefits. This does not seem to be the answer since at certain of the juvenile ages any reasonable increase in tabular mortality rates would still provide margins which are too low to cover these expenses.

A direct approach would seem to be preferable. The standard nonforfeiture law would be changed to permit, when a modern mortality table is used, the conversion of cash values to reduced paid up and extended term insurance at single premiums which reflect some allowance for the expense of handling the nonforfeiture options. This approach may be considered revolutionary, but it is no less reasonable than the provision in the standard nonforfeiture law which permits adjusted premiums to be calculated on the basis of a specified allowance for expenses instead of the previous artificial requirement that the cash value should be the reserve less a $25.00 surrender charge.

Companies and insurance departments have not given enough attention to the question of nonforfeiture benefits under a new mortality table. Perhaps this is because the companies, at least until recently, assumed that a new table would be simply a permissive valuation standard and would not apply at all to nonforfeiture benefits. It appears somewhat naive, however, to continue to hold this view in light of recent developments. It is doubtful whether insurance commissioners will be willing to accept a modern mortality table as a valuation standard without also requiring its use for nonforfeiture benefits.

Considerably more study is needed as to the nonforfeiture benefit problems which may arise under a modern mortality table. It is hoped that this subject is receiving some attention on the part of company actuaries.

Deficiency Reserves

Some of the difficulties caused by the deficiency reserve requirement and its effect on premium rates have been discussed above. It is now time to look at the requirement itself and see whether, in fact, it serves any purpose.

Deficiency reserves can be justified on a technical basis. Since the policy reserve, calculated prospectively, is the present value of future guaranteed benefits less the present value of future net premiums, it certainly seems proper to prevent a company from taking credit in the reserve calculation for future net premiums which it will not receive. If the gross premium is less than the net premium on the valuation basis, it is obvious that, to the extent of the deficiency, a part of the future net premiums will never actually be received. It is for this reason that deficiency reserves were first instituted.

In the eyes of some regulatory officials, however, the main purpose of requiring deficiency reserves is to prevent a company from using a gross premium which is clearly inadequate. Whether or not it

actually succeeds in doing this is open to question. Any valuation system or any valuation requirement can not alone eliminate inadequate rates. Furthermore, deficiency reserves produce certain definitely improper results.

If deficiency reserves are based upon an outmoded mortality table, as happens to be the case at present, they may prevent certain companies from reducing their rates in a fully justified manner, and thereby force the insuring public to pay more for its life insurance than it ought to pay. Within the insurance industry, too, deficiency reserves may have the effect of interfering with the relative competitive position of stock and mutual companies as well as discriminating between large and small nonparticipating companies. They also tend to distort annual earnings and surplus of those companies which must put up deficiency reserves.

Even on a purely theoretical actuarial basis, deficiency reserves have defects. The inconsistency between the deficiency reserve on a net level and a modified valuation method is one example. Since the renewal net premium by the commissioners' valuation method is greater than the net level premium, higher deficiency reserves are required on the commissioners' reserve method than would be required on the net level basis. The total reserve required, comprising the regular policy reserve plus the deficiency reserve, would be the same on the modified basis as on the net level basis. This would eliminate any benefit that a company would normally derive from using modified reserves. If deficiency reserves are necessary to avoid inadequate rates, it seems strange that they should be required in some cases when a company uses modified reserves and not required if the same company were to use a net level reserve valuation method. Certainly the method of valuation used has nothing to do with whether the gross premium is too high or too low.

Deficiency reserves currently have an adverse effect even on reinsurance. One year term reinsurance rates are at present much lower than CSO net premiums at nearly every attained age, although the actual mortality rates underlying reinsurance are somewhat higher than mortality on direct business. In order to avoid having to put up deficiency reserves, the reinsurance companies have had to circumvent the problem by using rates which are guaranteed for only one year at a time.

Another artificial method of avoiding deficiency reserves has been adopted by one large nonparticipating company which discovered that a substantial portion of its 1957 earnings would have had to be put up in the form of deficiency reserves. The device used by this company was to value its policies on CSO 3½ per cent for the first twenty policy years and CSO 2½ per cent thereafter. The result of this ingenious plan was to produce net valuation premiums lower than the company's gross rates. This company has therefore changed its reserve and its cash values without changing its gross premiums at all, and has thereby been able to eliminate the need for deficiency reserves.[7] This fact leads to two conclusions: (1) if a deficiency reserve requirement can so easily be circumvented by an ingenious and artificial method, it obviously is not of very much practical value; and (2) when a company is driven to use such artificial assumptions, it is probably time to take a good look at the deficiency reserve requirement and the mortality basis underlying policy reserves.

A further difficulty in regard to deficiency reserves occurs when reserves are strengthened, since the law requires that

[7] Connolly, Charles H., "The Effect of Varying Interest Rates," *Transactions of the Society of Actuaries*, Volume IX, p. 135.

the deficiency in the gross premium be measured against the net premium on the company's actual valuation basis rather than on the basis of the minimum legal standard. A company which strengthens its reserves and thus produces net premiums which are in excess of its gross premiums must put up a deficiency reserve in addition to the higher reserve on the new valuation basis. A company which wishes to strengthen its reserves is therefore doubly penalized. Certainly this does not make sense. This situation can, of course, be cured if deficiency reserve requirements are made to apply only when the gross premium is less than the net premium on the basis of the minimum valuation standard specified in the state law.

The Job of the State Insurance Department

It is the author's view that state law and state insurance departments can not be expected to guard the competitive position of small companies. Small companies will usually have unit expense rates exceeding those of large companies, and it would therefore be surprising if a small company could charge premium rates on all plans as low as those of a large company. This was generally recognized until a few years ago. Now, however, with the competitive situation existing in the United States in the field of ordinary life insurance, many small companies are trying to compete on a price basis with the largest ones. Such a practice can only lead to grief. For a small company to expect a state insurance department to continue stipulating as a valuation basis a mortality table which is obviously as out of date as the CSO Table on the grounds that to do otherwise would permit certain large companies to charge lower premium rates and gain a competitive advantage, requires a rather extraordinary concept of the purpose and functions of state regulation of insurance.

It is also felt that the notion that an outdated mortality table will help small companies to compete price-wise is incorrect. In the first place the deficiency reserve requirement does not affect participating companies. A company writing participating insurance, because its gross premiums will always exceed valuation net premiums, can show a net cost after dividends much lower than the premium charged by a nonparticipating company and still will not need to put up deficiency reserves. Since participating insurance comprises 68 per cent of the life insurance in force in the United States, this is certainly a competitive factor for a small company to consider.

Even when the discussion is limited to nonparticipating policies, there is considerable doubt whether the continued use of an outmoded mortality table will be effective in safeguarding the competitive position of small companies. In the first place, large companies generally have a sizeable surplus available and can afford to put up deficiency reserves when necessary. As the rates quoted in recent advertisements for high minimum amount ordinary life policies indicate, the requirement of deficiency reserves has not prevented many nonparticipating companies from cutting their gross premiums well below CSO nets.

Furthermore, a large company is more likely to have a fairly even distribution by plan of insurance. If only one or two plans have gross premiums which are less than valuation net premiums, it is doubtful whether more than 10 or 15 per cent of a large company's business will be written on these plans. A small company, on the other hand, may write one plan of insurance with a low gross premium, and, because of the effect of this "loss leader" on its agency force, find itself with 70 or 75 per cent of all its new business on this policy form. The deficiency reserve re-

quirement is therefore much more onerous to a small company than to a large one.

Even if a deficiency reserve requirement, coupled with an outmoded mortality table, did help to keep large non-par companies from reducing premium rates and therefore served to protect the competitive position of small companies, it is apparent from the above discussion of deficiency reserves that they can frequently be avoided by various means. It seems, therefore, that no consideration of the competitive position of various companies should govern in deciding whether or not to adopt a new mortality table. The question should be decided solely on its merits.

Although a state cannot guard the competitive position of small companies, it must guard their solvency. This is quite a different matter. Many people probably think that deficiency reserves help to ensure solvency by encouraging adequate rates. The above discussion indicates that deficiency reserves are a weak reed to lean upon in the attempt to keep companies from charging inadequate rates.

Fortunately there is a much stronger weapon available which has not been used except in the State of New York. Sub-section 10 of Section 213 of the New York Insurance Law provides as follows: "No such company shall issue any life insurance or annuity contract which shall not appear to be self-supporting on reasonable assumptions as to interest, mortality, and expense." A clause of this type is a much greater legal protection against inadequate rates than is a requirement for deficiency reserves. The deficiency reserve of course takes account only of net premiums and therefore entirely ignores the adequacy of the expense loading. A company which charged CSO 3 per cent net premiums on all plans and at all ages would, unless it had quite a high average size policy, almost surely find its margin for expenses insufficient and would probably eventually go bankrupt. Yet such a company would not have to put up any deficiency reserves.

Thus, a self-supporting provision would be much more effective than deficiency reserves in ensuring adequate rates if this is deemed to be one of the functions of state regulation. Under such a law, a company must be in a position to justify the premium it is charging. However, the superintendent of insurance has no authority to tell a company what rate to charge or to disapprove any premium rate unless it is obviously inadequate. The very existence of such a statute would probably obviate any necessity for an insurance commissioner to worry about enforcing it. Knowing that it might be called to account if it issued a loss leader, a company would probably be reluctant to do so.

Conclusion

A new mortality table for ordinary insurance is vitally necessary. Whether that table should be the X_{17} or some other is not as important as the clear fact that a new table is needed. However, much work has been done on Table X_{17}; and it seems to meet most requirements. Table X_{17} is safe as a valuation standard; it appears to be adequate for nonforfeiture benefits, with the possible exception that a change might be needed to permit a loading when the cash value is used to purchase extended term or reduced paid up insurance; and it will help to solve the public relations problems now caused by the use of the CSO Table.

Since the adoption of a new table will require an amendment to the insurance laws of nearly all states, wouldn't it be wiser to amend them so that, in the future, a new table can be adopted if it is first approved by the National Association of Insurance Commissioners and then accepted by the particular state in-

surance commissioner? For the issues which led to the present situation will not be permanently solved if a modern table is adopted at this time. Sooner or later the problem will reoccur.

SOME ASPECTS OF DENMARK'S INSURANCE INDUSTRY

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Any survey of insurance practices in Denmark would probably raise a question as to the possible importance of the findings to insurance students in the United States. Certainly Denmark, with a population of less than 4.5 million, cannot be considered a major power in the insurance world. However, the experience of Denmark in many phases of insurance has been of longer duration than similar activities in the American insurance business. In the field of social insurance, for example, legislation for the support of a public health service and public hospitals was passed in advance of most other countries. In the field of private insurance many innovations were introduced by the Danes. For example, the revision of the Danish Marine Insurance Convention in 1746 introduced the general franchise concept to the marine policy. It was three years later that Lloyd's followed with the memorandum clause.

The author proposes in this paper to review some aspects of the Danish insurance industry with which comparisons with experience in this country can be made. The evidence as to what is done in another country might provide a gauge with which to arrive at some tentative evaluation of current practices and policies in the United States. This approach seems feasible as the same type of perils are present in the Danish economy as are found in this country. The difference is largely one of degree.

Social Insurance System

First consideration will be given to the social insurance structure that has developed in Denmark to alleviate certain perils present in their economic and social life. The first measures, introduced about 1870, were concerned with the protection of workers in factories. It was not until the turn of the century that the era of modern social reforms on a wide front began with the introduction of the first social security schemes. The following decades saw a gradual development of social insurance supported partially with public funds. Another period began in the 1930's with the development of social protective measures. The existing social security legislation was codified by the Social Reform Acts of May, 1933. These consist of the Social Insurance Act, covering health insurance, disablement pensions, and old age pensions; the Workmen's Compensation Act; the Employment Service and Unemployment Act; and the Public Assistance Act. These acts with their amendments are the foundation of Danish social legislation.

Social Insurance Act

Health insurance was the first social insurance to develop in Denmark and was an outgrowth of the voluntary sick clubs that were founded in the last half of the nineteenth century. State support was given these sick clubs as early as 1892. Today, there are some 1600 such organizations in operation. Most of these are partially subsidized by the State. Active membership is restricted to persons with incomes not exceeding that of a fully-employed, skilled worker—a condition fulfilled by nearly 90 per cent of the

population. Other persons may join special non-subsidized health insurance societies.

The sick clubs are financed by members' contribution to the extent of about 70 per cent, with the State subsidy accounting for the rest. The annual contribution of a married couple amounts to a little less than the weekly earnings of a skilled worker. Seventy-five per cent of the adult population is covered by the partially-subsidized sick clubs. The benefits provided include: (a) free hospital service for all members; (b) free medical attention (general practitioners and specialists having contracted with the clubs to this effect); (c) three-fourths of the cost of more than 200 specified medicines; (d) a daily benefit of not less than 0.40 kr.[1] nor more than 6 kr.; (e) many other benefits, at the discretion of the clubs' supervisors; and (f) funeral benefits.

Denmark has had old age pension provisions since 1891. The financing has always been from public funds. In 1922 differential pensions based on income were introduced, and the latest amendment was made in 1956. The provisions of the new law will be commented on under the discussion of life insurance.

Disablement insurance is compulsory for virtually everyone between the ages of 21 and 60. The insured person pays an annual premium of 8.40 kr. Insured couples pay 7.20 kr. each. A person qualifies for a disablement pension when his or her earning capacity has been reduced to one-third of normal or less. The basic disablement pension and fixed allowances are the same as for old-age pensions, but all disablement pensioners receive a special allowance amounting to about 10 per cent of the pension for a single person. In recent years about 11 per cent of the sums paid to disabled persons were derived from insureds' contributions, 4 per cent from employers' contributions, and the rest from State and local government subsidies.

[1] The current rate of exchange is approximately 7 kr. to the dollar.

Workmen's Compensation Act

The current Workmen's Compensation law requires all employers to insure themselves with an insurance company approved by the Ministry of Social Affairs. All costs are borne by the employers, contributions being distributed among the various industries in proportion to their risks. An employer who neglects to insure his employees is personally liable for any injury; and in event of insolvency, all approved accident insurance companies are liable jointly. An injured worker receives both a daily benefit and disablement compensation and is also entitled to compensation in a number of occupational diseases.

Unemployment Act

Unemployment funds established before the turn of the century by the trade unions and subsequently taken over by the State are the basic vehicles of unemployment insurance. The great majority of wage earners belong to such funds. The unions require their members to join the unemployment fund of their trade. The funds are under the supervision of the Directorate of Labour, subject to the Ministry of Social Affairs; but they are otherwise independent. The finances of the unions and their unemployment funds are kept strictly separate. At present there are 64 approved unemployment funds with a total membership of 673,000. Persons with dependents may receive daily benefits not exceeding 12.20 kr. a day for six days a week, plus an allowance of 1.30 kr. a day for each dependent child under 14. A rent allowance of up to 81 kr. per month and a fuel allowance of up to 95 kr. per year may be paid. The duration of the benefits varies

from fund to fund, but the maximum is generally 270 days a year. The unemployment funds are subsidized by the State and local governments. In 1954 the expenditure of all unemployment funds on benefits was about 252 million kr., of which 154 million kr. represented State and local government subsidies, 11 million kr. employers' contributions, and 106 million kr. members' contributions. The whole country is served by labor exchanges which collaborate with employment funds and the employers in order to achieve speedy contact between the employers and the unemployed. The unemployment funds also maintain an employment service.

Public Assistance

For those who may not be covered by any of the social insurance measures, the State has set up a comprehensive program of public assistance. Some of the areas covered are: (a) general relief to any needy person; (b) child welfare; (c) special relief for physically and mentally handicapped persons; (d) maternity welfare (all expectant mothers, regardless of financial status, are entitled to 3 examinations by a doctor and 7 by a licensed midwife, free of charge); and (e) relief for unmarried mothers and other single persons with dependents. Welfare services in many other areas are also provided by the State and local governments.

Private Insurance

After the above brief outline of the outstanding features of the Danish social insurance system, the discussion will now be directed to some of the salient points in the so-called private insurance system. In this area certain State insurance institutions exist with private insurance enterprises.

The Organization of the Insurance Business

The Danish Insurance Yearbook (*Dansk Forsikring Aarbog*) for 1956 contains a register of Danish insurance companies with operating statistics for each of the 415 companies listed. For the same year the Statistical Yearbook (*Statistisk Aarbog, 1956*) lists a total of 366 companies divided as follows: 93 joint stock companies and 273 mutuals.[2] In addition, there is one private insurer operating in the marine field and the State Life Assurance Institution. War damage insurance is handled by a State institution called Dansk Krigs Sø Forsikring.

Most of the insurance companies are small. In 1956, 246 of the mutuals and 31 of the stock companies had a premium income on direct business of less than 1 million kr. (about $142,850). The reinsurance business mainly concerns the stock companies. The relative importance of the mutuals and stock companies is indicated by figures showing that over 70 per cent of the direct business was insured by the stock companies. Approximately 98 per cent of the reinsurance business was accounted for by this type of company.

The annual report for 1955 by the Danish Insurance Council shows the life insurance business divided among 33 companies. A further breakdown shows 13 to be joint-stock companies, 6 mutuals, 1 State institution, 8 reinsurance companies, and 5 foreign life assurance companies. The State life institution (Statsanstalten) is the largest life insurer in Denmark, accounting for about 22 per cent of the premiums. Hafnia, the largest stock or private company has almost an equivalent amount in force. Of the total life premiums for 1954, joint stock companies accounted for 67 per cent, mutuals for 11 per cent, and the State institution for 22 per cent.

[2] Failure to include all of the small local mutuals accounts for the discrepancy in the figures compared to those of the Insurance Yearbook. Many small local mutuals insure livestock primarily.

The bulk of the fire insurance of fixed property is accounted for by four large mutual societies, three of them founded in the 18th century. The mutuals account for roughly 75 per cent of the fire insurance business, joint-stock companies write 24 per cent, the State Fire Insurance Fund handles only 0.4 per cent, and foreign companies write 0.6 per cent. There are 44 companies (17 stock and 27 mutuals) writing marine insurance in Denmark. Six companies, however, account for the bulk of the marine business. If one considers all branches of the insurance business except life, it is found that the joint stock companies accounted for 80 per cent of the total premiums in 1954.[3]

Thus it is seen that several different types of insurance organizations are in existence in Denmark. The Danish Insurance Supervision Act of 1934, states in Article I, "Private insurance business must in the future be commenced only by limited liability and mutual companies." At the present time (1957), only one private company remains in Denmark that is not either a mutual, a stock company, or a State institution. This firm engages in marine insurance exclusively.[4]

Some of the Danish companies specialize in one branch of the insurance business, while some stock companies are multiple line underwriters handling all types of insurance, including life. In total, it may be said that less than 100 companies account for the bulk of all underwriting.

Lines of Insurance

As the marine business is the oldest class of insurance in Denmark, some aspects of this division of the field will be considered first.

Marine Insurance—The typical marine underwriter in Denmark, for operational purposes, divides the work into four departments, namely: (a) hulls; (b) goods; (c) reinsurance, hull, and goods; and (d) marine claims, hull, and goods. Hull insurance on Danish ships is written almost exclusively by Danish insurers. The following figures will give some idea of the volume of marine hull and cargo business. The total direct premiums for marine insurance amounted to 78,184,000 kr. in 1954. The total premium for all direct insurance, except life, was 499,172,000 kr. for the same year. The total premiums for reinsurance amounted to 511,707,000 kr.; and of this total, 98,815,000 kr. was marine reinsurance.[5]

At the end of 1954, the Danish merchant fleet consisted of 2,014 ships of more than 20 gross registered tons, totaling 1,644,399 g.r.t. The small vessels of less than 20 g.r.t. include 15,000 fishing craft. In the traffic between Danish and foreign ports in 1954, 15,000,000 tons came in and 3,200,000 tons went out; and about one-third of the whole was carried in Danish ships. About two-thirds of the incoming cargo consists of fuels and other minerals. Although in recent years Danish ships are finding less employment in trade to and from Denmark, their owners have succeeded in obtaining increasing employment in purely foreign trade. Thus in 1953 more than 9,400,000 tons of goods were carried between foreign ports by Danish vessels.[6] The Danes have little competition in the hull insurance field except from British companies. A chief reason is the fact that some of the owners of the largest fleets are heavy stockholders in Danish insurance companies. Some of these companies were founded by shipping concerns.

[3] Denmark's *Statistisk Aarbog 1956*.

[4] This company is Den Kjobenhavnske Sø Assurance. It operates like Lloyd's of London, each underwriter being liable for his entire fortune on the amount he takes on a risk.

[5] *Statistisk Aarbog 1956*, p. 200.

[6] Royal Ministry of Foreign Affairs and the Danish Statistical Department, *Denmark*, pp. 201-214.

In Denmark, there is no standard hull policy. However, the insurance code and standard clauses provide something close to standardization. The Marine Insurance Convention of 1934 is really a marine insurance plan or code consisting of 256 sections, framed in legal language and approved by the organizations of Danish underwriters, merchants, and shipowners. This code becomes a part of the insurance contract as it is referred to in the policy. The first sentence of the marine cargo policy reads: "The provisions of the Danish Marine Insurance Convention of 2nd of April 1934 shall apply to this insurance subject to the following alterations and accentuations." The "Convention" is really an insurance code relative to marine policies. Although there is no standard policy as such, the provisions in marine contracts must be consistent with the insurance code or "Convention." In addition, the marine policy usually has affixed to it certain standard clauses framed by the Association of Marine Underwriters.

Hull policies are written for one year, from January 1 to December 31. The rates for hulls are promulgated by a committee of marine underwriters who decide on a rate each year. The major work of the committee comes in the closing months of each year when rate revisions for the next year must be established. The rate paid by a company with many hulls is determined by the loss experience for the previous five years. Ownership is another factor in rate making. One company may pay a different premium than the former owner due to a different loss experience. The rate is made up of several parts: (a) the average or partial loss factor, (b) the total loss factor, and (c) the franchise item (amount deductible from each loss).

Marine insurers in Denmark do not use brokers in placing the business but deal directly with the ship owners. This is, of course, not the practice in the London market where the underwriters always work through brokers. About the only field in which brokers are used in Denmark is in the placing of reinsurance. The London market is the most important one for this purpose. Any changes in rates or other factors affecting the risk is explained to the broker, who explains the risk to the chief underwriter, who may then sign (underwrite) for a portion of the risk. Other underwriters in the same syndicate with the chief underwriter will then sign for their portion of the risk. In London the underwriters and insureds never see each other. In Denmark the insurer deals directly with the insured, and the company does its own inspection of risks and has its own average adjusters.

The policy insuring goods (cargo) is written in English, and a standard policy form is used by all Danish underwriters. The premium is made up of two elements: (a) the risk of carriage or perils of the sea and (b) the war risk. The war risk involving goods and hulls is covered by a State institution called Dansk Krigs Sø Forsikring. The rates for the war risk are of course subject to change from time to time as the risk varies. In times of peace the risk from floating mines is the chief hazard that may cause loss. Tariff Number 52 (Praemie Tarif Nr. 52) went into effect as of February, 1957. The rate at that time was 3/80 of 1 per cent of the value of goods shipped, except for the Suez Canal area where the rates were higher. Every marine insurer of goods and hulls must collect the war risk premium for the State institution. Fifteen per cent of the war risk premium is retained by the insurer to cover clerical costs involved, and the remainder is forwarded to the State war risk insurer. The other part of the marine premium is not controlled; that is, there is no rating bureau, as such, that promulgates rates.

However, among the Danish marine insurers there are informal rate agreements. It should be remembered that six companies write the bulk of the marine insurance.

For some commodities, tariff rates have been arrived at through a committee which has representatives from the marine insurers of Denmark. Tariff rates are quoted, for example, on coal, coke, coffee, cocoa, corn, feeds, timber, and agricultural products. On these commodities, tariff rates are followed. There is apparently no deviation from these rates by Danish companies. No system of checking has been set up to ascertain if all companies are following the tariff rates. Outside of tariff rates on a few commodities, the rates are uncontrolled. Hence a shipper may do a bit of shopping around for lower rates.

Most Danish shippers insure with Danish companies despite some rate cutting by certain foreign competitors. Competition in the marine cargo insurance field comes principally from British companies. It is claimed by some Danish insurance people that a well-known British company quotes rates of 25 per cent below that of the Danish companies without having any statistical basis for such a quotation. The shipper with a Danish insurance policy has some advantages in case there should be a loss under the policy. Under a Lloyd's policy, for example, there is a fee of 1 per cent that must be paid to the broker for collecting from the underwriter. Again, in case of war, a policy in a Danish company might prove much superior to the Danish shipper. Cargo policies are not issued to each and every shipper insuring his goods. The insurer with many large shipper customers usually covers the shipper under a floating policy. Certificates indicate the value of goods shipped in various ships, and premiums are paid monthly. This is a common practice in the United States.

Motor Car Insurance—While Denmark has few motor cars compared to the United States, this field of insurance is expanding rapidly. Denmark has a compulsory insurance law with respect to third party liability. The owner of a motor vehicle, as a condition precedent to getting license plates, must show that he has an automobile liability policy. The law requires a 60,000 kr. policy (about $8,500) which applies to all accidents in which bodily injury occurs, regardless of the number of people injured.

The driver of the vehicle is assumed to be negligent when a person is injured. In order to escape liability he must prove that he was not negligent or that there was contributory negligence on the part of the injured person. In a vast majority of accident cases, contributory negligence cannot be proved. Hence the insurers of motor vehicle liability are called upon to pay in a higher percentage of the cases than in the United States. Even if the injured person can be shown to have contributed to the accident through his own negligence, the insurer will still have to indemnify in cases in which a family breadwinner is killed. In a sense, this puts some auto accidents into the category of compensation claims. The law provides that up to 40,000 kr. goes to the widow in case of death of a husband who is supporting the family. If it could be proved that death resulted from contributory negligence of the husband, the widow would not be paid the full amount indicated above but would still receive a portion of that amount.

Bicycles and motor bicycles are insured against theft only as the liability exposure for injuries to persons and property is covered in a personal liability policy. Theft of bicycles and motor-bikes is quite common in spite of the strictly enforced vehicle code of 1955 which requires persons to properly lock bicycles when not attended.

In view of the compulsory nature of automobile liability insurance, a speedy way of getting a policy into the hands of the vehicle owner has been devised. Insurers name automobile dealers as subagents, so that the policy may be issued by them immediately. This policy must be shown to police authorities before plates will be issued in states with compulsory insurance. Liability policies for which higher limits are requested are issued in the home office of the insurer. Policies covering physical damage to the car are issued by the home office under a hull policy. This policy, as in the United States, may be a broad form covering all losses to the car itself, including collision damage, or it may be written covering selected perils.

The leading automobile underwriters cooperate in fixing rates for physical loss and liability covers. These rates are based upon the experience of all companies reporting to a central bureau. There is some rate cutting among the smaller companies, but they are usually brought into line by the big companies refusing to reinsure their risks. The rate for the required 60,000 kr. liability policy to cover the owner of a car for private use was 210 kr. (about $30) in 1957. There is no distinction made in rates for different age groups for liability coverage. Perhaps one explanation lies in the fact that few young people drive in Denmark. Drivers' licenses are not easily obtained as they are given after one has completed driving lessons at a State-sponsored school.

Poor drivers often find it difficult, except at prohibitive rates, to obtain the liability coverage required by law. There is no plan as yet to distribute equitably the poor risks among all automobile insurers.

Life Insurance — In spite of the fact that the social security measures in Denmark account for about 10 per cent of the national revenue and even though nearly 85 per cent of the costs are borne directly by government, which amounts to about one-third of all public expenditures, the public does not receive adequate protection against the perils insured against. There is still a market for life insurance to supplement the State program.

As an example of the inadequacy of the State program, old age pensions might be examined. The 1956 amendments to the Social Insurance Act increased the age at which a person is eligible for benefits from 65 for men and 60 for women to 67 and 62, respectively. The present law provides a minimum old age pension for all, regardless of income, of 1020 kr. (about $145) per year to each couple. This represents about 9 per cent of the yearly income of an average family. The maximum pension for husband and wife is fixed at 5100 kr. (about $730) per year. To obtain this amount the couple must not have more than 5,000 kr. of other income.

A sales argument of life insurance people selling endowment policies and annuities has been to stress that supplements are necessary even for the maximum pensions allowance provided by the State. Another reason given for using life insurance as a savings medium is the fact that some life insurance premiums receive special treatment under the income tax laws. Premiums paid for pensions may be deducted from income, and all life premiums paid for annuities payable 10 years or more after the policy is written are deductible from present income.

An important factor causing resistance on the part of prospective buyers of life insurance has been the inflation that Denmark has experienced during the past twenty years. The official index of retail prices for April, 1957 was 246, with 1935 serving as the base of 100.[7] The trend of prices is still upward.

[7] Den Danske Landmandsbank, "Monthly Review of the Economic Situation in Denmark" (May 15, 1957).

Life underwriting procedures are similar to those employed by many insurers in the United States. The application provides the basic data, and medical examinations are given only in cases where the data indicate some doubt as to the insurability of the applicant or where the policy involves large amounts of coverage.

Most of the life insurance written is of the endowment at age 65 type. Some annuity or lump sum policies are written, many of them to provide gifts to children at the time of their confirmation. Term and ordinary life insurance are not sold to any great extent. The average size policy is small by United States standards. Some industrial insurance is sold, but group insurance has not developed.[8]

Supervision of life insurance dates from 1904. The Insurance Council and the Ministry of Commerce perform this function. Insurance companies must make annual reports to the Council on a form similar to the Convention report used in the United States. Periodic, but infrequent, examinations or audits of the books are made. Investment regulations differ for life and property insurance, hence multiple line companies operating a life department must segregate the investment accounts in the same way they would if separate companies existed. Government obligations, mortgages, and corporate bonds constitute the chief assets of life companies.

Fire Insurance—Fire insurance policies are standardized, with separate forms for dwelling, commercial, and industrial properties. Other perils may be included in these forms, such as those included in the extended coverage endorsement of this country, burglary, and loss of profits. Windstorm losses are limited in Denmark, and floods present no problem except in certain portions of Jutland.

A rating organization is supported by all of the fire insurance companies. Its rates apply to the whole country as there is no specific schedule for each locality. These rates are generally adhered to except by certain foreign companies. Usually the companies cutting rates have no statistical basis for their action, and they have been losing money recently. The loss ratio for Danish companies in their fire lines averages approximately 40 per cent.

Facultative and treaty agreements are commonly used for reinsurance purposes as most Danish companies retain only a small portion of a given piece of insurance. The business is generally written through agents who complete an application and give the insured a temporary copy of the agreement. This is binding for a short period or until the insurer issues a regular policy.

Distribution Methods

Although it is difficult to generalize on the methods by which insurance is distributed by Danish insurers, most large multiple line companies have similar types of organizations and follow similar practices. A review of the agency problems of at least one important Danish company, the Assurance-Compagniet Baltica, provide some interesting comparisons with the problems faced in the distribution of insurance in the United States.

Baltica has approximately 650 part-time agents and 100 full-time agents. In addition to establishing contacts with buyers, they collect the premiums and serve in adjusting most losses. Collections are often made made in person rather than through the mails. Serious consideration is being given by the company to direct billing by the home office, but the agents' trade group in the country objects to this move. Most companies apparently would like to change to direct billing; but

[8] Mr. Knud Munch, Life Actuary for Assurance-Compagniet Baltica, informed the writer that there were not over 10 group life policies in Denmark due to what he called the lack of need for such contracts.

the question of what vested right, if any, the agent has in his renewals will have to be resolved.

The training of agents is a major problem, especially with respect to part-time men. The work done with this group consists largely of periodic home office and correspondence courses. Regional meetings are held frequently as a training medium. In spite of the difficulties involved in training the part-time agent, they continue to be used as the 650 such agents of Baltica bring in approximately the same volume of business as is produced by the 100 full-time persons.

The average income for the full-time agent with Baltica is 20,000 kr. (about $2,860) per year. He has few expenses as the company pays for his office space, postage, and all incidental business expenses. The minimum wages paid such agents are 12,000 kr. for married men and 10,000 kr. for single agents. Part-time agents work on a commission basis and average about 11,000 kr. per year. This is sufficient as it serves as a supplement to wages and salaries earned in civil service positions, farming, and other types of work.

Those responsible for agency management feel that one of the biggest problems in this area is that too much of an agent's time is spent on clerical activities with the result that he has inadequate time to prospect for new business. Another agency problem is that of getting agents to sell all lines of insurance. There is a tendency for agents to concentrate on the lines easiest to sell. Baltica is seeking to develop the concept of account selling among its agents but has met with limited success.

Personnel Policies and Practices

Personnel departments have been established in most of the larger Danish insurance companies. The functions with which they are concerned include recruiting, training, evaluation of employee performance, and the development of procedure manuals.

Most employees of insurers are recruited directly from the public schools. These generally are students who have completed 10 years of schooling. The companies have had limited success in attracting graduates of universities or scientific institutes. In view of the fact that most new employees are classed as commercial apprentices, the State requires them to receive further instruction at commercial schools established in all cities and towns while on their jobs. They take courses there for about two hours a day, and the costs of books and tuition are met by the company hiring them. Most insurance companies encourage their employees to continue their educational activities after their three years in the commercial schools. Baltica urges its employees to enroll in the part-time study programs at the Copenhagen School of Economics and Business Administration and agrees to cover the costs of tuition and books. Most executives of the company have completed this four-year program of study.

Training within the companies often begins with an orientation program for new employees. Baltica, for instance, offer 12 hours of instruction to those who have completed two months' service and then has a 16-hour program for employees who have completed one year of service. Formal job training programs are not common, so the employee is usually trained by someone in his department.

Formal programs of job evaluation whereby an attempt is made to arrive at equitable pay scales are not commonly used in Denmark. At least one of the larger companies has considered setting up such a program but has taken no action. The pay scales seem to be established on the basis of matching the prevailing wage rates of similar industries.

The pay scales of insurance companies in Denmark are lower than those of American insurers in terms of both actual and real income. A "typical" firm might offer commercial apprentices 3,810 kr. per year, which is approximately $45 per month. By the end of the third year of apprenticeship the top scale would be about $56 per month. This would apply to persons averaging 20 years of age.

Beyond the apprentice stage the salary scale for male employees starts at about $74 per month and rises by regular increments to about $146, after 25 years of service. The wage level is somewhat less for women. For those who reach the executive level the income is greater, but it is still low in terms of insurance executive salaries in the United States. A typical large company will pay its department heads about $3,600 per year.

In an effort to reduce costs, most companies conduct continuous studies on the simplification of office procedures. Some companies have established departments whose principal function is to simplify work and reduce clerical costs. Standard systems and procedures have been established, and checks are frequently made to see that the individual worker is complying with prescribed methods. Procedure manuals are often used in conjunction with the training of the employee on the job.

Conclusion

A review of insurance practices in Denmark reveals that many problems faced by insurers there are similar to those of insurers in the United States. It is felt that a detailed study of the comparative systems of both countries might produce additional testimony as to how the problems in both countries might be solved most expeditiously.

CONTRIBUTIONS OF LIFE INSURANCE TO CAPITAL FORMATION IN THE SOUTH

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In spite of two world wars and one of the most disastrous depressions on record, the growth of the American economy in the Twentieth Century has been remarkable. Among the many institutions which have shared in this expansion, insurance has increasingly forged to the front. Each decade has witnessed the extension of insurance coverage to include perils not previously covered and to provide more complete coverage in existing fields through the addition of new policies. Insurance services now permeate almost every phase of our system of production and support our modern marketing and exchange activities. In 1906, when the first *Best's Life Insurance Report* covering 1905 appeared, only 95 legal reserve domestic companies were in operation in the United States; but at mid-year 1958, 1,314 companies were engaged in this field of economic activity.[1] Growth in terms of insurance in force and assets has been even greater as reference to the *Life Insurance Fact Book* will readily indicate.[2]

Extent of Savings through Life Insurance

Many phases of financial institutions of this magnitude merit attention, but this paper will be limited to a consideration of some of the ways in which life insurance has supported capital formation in general, and specifically in the South.[3] If policy reserves be used as a general measurement of savings, there has been a marked upward trend of savings in the life insurance field. Because policy reserves—a liability item—exceed cash surrender values, this procedure overstates savings, but the effect is relatively slight. The increase is not as great when reduced to constant dollars, but it is still sizeable. In his study of the supply of savings, Goldsmith concluded that life insurance has accounted for an increasing share of personal savings.[4] He estimated that this share amounted to 8 per cent in 1910-13, 10 per cent in the early 1920's, and 20 per cent in 1946-49. If government pension and retirement funds are added, the figure for 1946-49 becomes 35 per cent.

Statistical data for the volume of savings through life insurance at the state level are less adequate than for the country as a whole. The Life Insurance Association of America has compiled regional information concerning assets, reserves, and investments for 49 United States legal reserve life insurance companies. Since these firms have held in different

[1] *The Journal of Commerce* (August 25, 1958), p. 5.

[2] *Life Insurance Fact Book 1958* (New York: Institute of Life Insurance, 1958). See particularly pages 10 and 65.

[3] The only published analysis on this specific phase of insurance and capital formation the author could discover is included in C. B. Hoover and B. U. Ratchford, *Economic Resources and Policies of the South.*

[4] *Investment of Life Insurance Funds* (Philadelphia: University of Pennsylvania Press, 1953), pp. 50-55.

years from 86 to 93.8 per cent of all admitted assets in United States companies, an analysis based on such data is sufficiently accurate for the purposes here contemplated.

The geographic divisions — South Atlantic, East South Central, and West South Central — are considered to represent the South.[5] Three states—Delaware, West Virginia, and Maryland—and the District of Columbia are included even though they are not usually considered to be in the southern region. However, the results are not greatly affected by this fact.

TABLE 1
RESERVES OF LIFE INSURANCE COMPANIES BY REGIONS
(000 OMITTED)

Year	*South Atlantic*	*East South Central*	*West South Central*
1923	$ 627,343	$ 310,489	$ 266,221
1924	676,964	331,985	283,799
1928	987,481	468,329	420,629
1929	1,059,744	503,494	454,604
1933	1,274,571	561,947	513,821
1934	1,351,747	582,550	543,218
1938	1,801,145	731,397	726,680
1940	2,022,235	805,011	824,409
1945	2,885,655	1,095,859	1,237,450
1948	3,588,078	1,333,688	1,624,697
1950	4,129,458	1,505,154	1,926,443
1953	5,138,061	1,794,940	2,451,638
1954	5,486,677	1,909,178	2,674,279

Source: Life Insurance Association of America.

While it can be clearly seen in Table 1 that all three regions made definitive gains in reserves from 1923 through 1954, the rate of increase was greater for the South Atlantic and West South Central regions, where the increases were nine-fold and ten-fold, respectively. This compares with a six-fold increase in the East South Central area.

It is apparent from Table 2 that the reserves for the three southern regions increased over 700 per cent from 1923 through 1954. This rate of growth closely parallels the rate achieved for the entire country as the percentage of total United States reserves held in the South run fairly consistently between 14.4 and 16.8 per cent. The increased percentage of reserves in the South from 14.8 per cent in 1940 to 16.7 per cent in 1950 was probably a result of a faster rise of disposable income in the South than in the United States. The generally increasing percentage of reserves in the South proportionate to the rest of the country may in part reflect the rapid growth of southern life insurance companies and the mushrooming of new companies in this area. It is almost certain that a large portion of the policy reserves of these companies represent savings of southern policyholders.

Types of Investments

A second important phase of capital formation and economic development

TABLE 2
RESERVES OF 49 LIFE INSURANCE COMPANIES* BY REGIONS
(000 OMITTED)

Years	*South*	*United States*	*Ratio of South to the United States*
1923	$1,204,053	$ 7,171,122	16.8%
1924	1,292,748	7,836,899	16.5
1928	1,876,139	12,150,846	15.4
1929	2,017,842	13,387,614	15.1
1933	2,350,339	16,321,780	14.4
1934	2,477,515	17,139,585	14.5
1938	3,259,222	22,236,156	14.6
1940	3,651,655	24,690,402	14.8
1945	5,218,914	34,628,470	15.0
1948	6,546,463	42,524,112	15.4
1950	7,561,655	45,156,587	16.7
1953	9,384,639	57,809,861	16.2
1954	10,070,134	61,146,845	16.4

Source: Compiled from Life Insurance Association of America, *Annual Records of Life Insurance Investments.*

* The 49 companies are a group selected by the Life Insurance Association of America.

[5] The geographic divisions used throughout this paper correspond with those used by the U.S. Bureau of the Census and are as follows:

South Atlantic: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida.
East South Central: Kentucky, Tennessee, Alabama, Mississippi.
West South Central: Arkansas, Louisiana, Oklahoma, Texas.

concerns the use of savings. It is obvious that profitable use of savings by life insurance companies is an essential part of their operations. They are faced with finding outlets for the amount added to their funds from current premiums and returns on investments, as well as from maturing obligations purchased previously. The investment program must provide for the productive use of a rapidly expanding volume of assets. While some legal controls are imposed upon the investment policies of life insurers, enough flexibility exists to enable them to shift funds to areas where demand for loanable funds is great.

Table 3 gives a percentage distribution of the assets of U. S. life insurance companies by class of investment. Several important changes in these investments are evident. The Table shows a continuous decrease in railway bonds and a steady expansion in holdings of public utility bonds. Perhaps the most striking changes are the increasing percentage of investment in industrial bonds and the shift to government bonds during the two world wars and the depression of the thirties.[6]

TABLE 3

PERCENTAGE DISTRIBUTION OF ASSETS
U. S. LIFE INSURANCE COMPANIES FOR SELECTED YEARS

Year	*State, Provincial and Local Bonds*	*Foreign Govt. Bonds*	*Railroad Bonds*	*Public Utility Bonds*	*Industrial & Misc. Bonds*	*Stocks*	*Mortgages*	*Real Estate*	*Policy Loans*	*Miscellaneous Assets*
1917	5.6%	2.8%	30.5%	1.9%	.8%	1.4%	34.0%	3.0%	13.6%	5.2%
1920	4.8	2.3	24.3	1.7	.7	1.0	33.4	2.3	11.7	6.5
1925	4.6	1.3	19.4	6.0	.8	.7	41.7	2.3	12.5	5.3
1930	5.4	.9	15.5	8.6	1.9	2.8	40.2	2.9	14.9	5.2
1935	7.3	.8	11.3	9.1	2.5	2.5	23.1	8.6	15.2	7.3
1940	7.8	1.0	9.2	13.9	5.0	2.0	19.4	6.7	10.0	6.3
1945	2.3	2.1	6.6	11.6	4.3	2.2	14.8	1.9	4.4	3.9
1950	2.4	1.7	5.0	16.5	14.9	3.3	25.1	2.2	3.8	4.1
1953	2.6	.7	4.7	16.3	19.7	3.3	29.7	2.6	3.7	4.2
1954	3.1	.5	4.5	16.0	20.0	3.9	30.7	2.7	3.7	4.2
1955	3.0	.4	4.3	15.5	20.1	4.0	32.6	2.9	3.6	4.1

Source: Institute of Life Insurance.

The funds invested in mortgages parallel the periods of rapid expansion in home building. Policy loans have fallen rapidly since the depression year, 1935. Real estate holdings have averaged between two and three per cent, except for the 1930's; and stocks have increased from two to four per cent of total investments since 1940. In general, it may be said that the investments of the life insurance companies have been such as to support economic development and capital formation.

The data on investments in the South are not as complete as for the nation. However, the information from the Life Insurance Association of America makes it possible to compile information for selected years on investments by regions and for the South as a whole.

Table 4 presents the total investments in the three regions being considered, while Table 5 provides a comparison of the South with the United States for the 49 companies included in the regional break-down of data. The increase in investments is continuous for all three regions but is more noticeable in the West South Central and the South Atlantic.

[6] This rapidity with which shifts have been made in the uses of life insurance funds to meet changing demands indicates greater flexibility than is usually associated with institutions providing long term capital.

Table 5 makes abundantly clear the fact that life insurance companies (at least the group of 49) are directing an increasing share of their funds to the South.

TABLE 4

INVESTMENTS OF LIFE INSURANCE COMPANIES FOR SELECTED YEARS
(000 OMITTED)

Year	*South Atlantic Investments*	*East South Central Investments*	*West South Central Investments*
1923	$ 785,823	$ 479,402	$ 527,003
1924	878,200	524,211	575,257
1928	1,321,190	760,861	835,422
1929	1,434,164	824,608	901,459
1933	1,588,849	913,136	1,029,425
1934	1,697,465	959,695	1,071,739
1938	2,279,594	1,238,124	1,514,076
1940	2,610,231	1,378,166	1,700,443
1945	4,748,256	2,295,366	3,106,154
1948	5,409,150	2,532,163	4,269,513
1950	6,356,025	2,827,665	5,317,557
1953	7,669,865	3,360,975	7,213,099
1954	8,125,413	3,585,877	7,823,807

Source: Life Insurance Association of America, *Annual Record of Life Insurance Investments.*

TABLE 5

INVESTMENTS OF 49 LIFE INSURANCE COMPANIES IN THE UNITED STATES AND THE SOUTH
(000 OMITTED)

Year	*South*	*United States*	*Percentage of South*
1923	$ 1,792,228	$ 8,041,951	22.3
1924	1,977,668	8,885,397	
1928	2,917,473	13,359,999	21.8
1929	3,160,231	14,530,011	
1933	3,531,410	17,576,016	20.6
1934	3,728,898	18,473,971	
1938	5,031,794	23,367,864	21.5
1940	5,688,840	26,057,423	
1945	10,149,776	37,372,866	27.5
1948	12,210,826	44,430,417	
1950	14,501,247	50,295,410	28.8
1953	18,243,939	57,315,970	
1954	19,535,097	65,013,357	30.0

Sources: Compiled from Investment Reports, Life Insurance Association of America, and Spectator Year Books.

The increasing interest on the part of life company management in the South as an outlet for its funds is also apparent when the ratio of the investments of life companies to their reserves in the southern regions is studied. Not only have the insurers poured substantially more into the South than is indicated by the reserves on policies issued in that region; but the ratio generally has been improving in favor of the South, as can be seen in Table 6. The old argument that the South has a colonial status and that its economic problems stem from the flow of profits and interest out of the region to northern absentee owners is hardly valid with respect to savings through life insurance today.

TABLE 6

RATIO OF INVESTMENTS OF LIFE INSURANCE COMPANIES TO THEIR RESERVES BY REGIONS

Year	*South Atlantic*	*East South Central*	*West South Central*
1923	125.3	154.4	198.0
1924	129.7	157.9	202.7
1928	133.8	162.5	198.6
1929	135.3	163.8	198.3
1933	124.7	162.5	200.3
1934	125.6	164.7	197.3
1938	126.6	169.3	208.4
1940	129.1	171.3	206.3
1945	164.5	209.5	251.0
1948	150.8	189.9	262.8
1950	153.9	187.9	276.0
1953	149.3	187.2	294.2
1954	148.1	187.8	292.6

Source: Life Insurance Association of America.

The distribution of the financial support of life insurance companies within the southern economy is also of interest. Tables 7 through 10 show for each region, and the South separately, the ratio of each class of investment in that region to total investments in that class. There

TABLE 7

RATIO OF EACH CLASS OF INVESTMENT TO TOTAL INVESTMENTS IN THE CLASS
SOUTH ATLANTIC REGION

	1923	*1928*	*1933*	*1938*	*1945*	*1950*	*1954*
Farm Mtge.	4.1	2.8	2.2	3.3	2.9	4.3	6.0
Other Mtge.	10.0	10.0	8.8	9.2	11.8	14.9	15.1
State Mun. Bonds	3.7	11.9	9.2	8.3	4.3	6.5	8.8
Ry Bonds St.	11.5	12.6	11.8	10.9	12.1	13.4	14.4
Public Ut. Bonds	(1)	7.7	7.2	6.9	10.4	9.6	9.5
Other Bonds (2nd)	5.3	3.3	3.0	9.0	11.0	9.7	8.8
Policy Loans	11.6	11.8	9.7	9.7	9.9	10.1	10.6
Real Estate	3.7	6.8	8.2	4.7	3.6	5.7	7.5
Cash	3.4	2.7	1.8	1.9	2.2	3.9	4.2
Other Assets		1.7	1.2	3.3	.9	8.3	7.7

(1) Included in other classifications in 1923.
Source: Life Insurance Association of America.

TABLE 8

RATIO OF EACH CLASS OF INVESTMENT TO TOTAL INVESTMENTS IN THE CLASS WEST SOUTH CENTRAL REGION

	1923	*1928*	*1933*	*1938*	*1945*	*1950*	*1954*
Farm Mtge.	11.2	10.5	10.6	11.8	13.1	16.6	17.3
Other Mtge.	2.7	3.6	3.8	3.8	6.2	12.1	13.7
State Mu. Bonds	4.7	7.3	7.6	6.4	4.2	6.1	6.8
Ry Bonds	6.1	7.7	7.1	6.7	4.9	6.5	7.0
Public Ut. Bonds	(1)	3.7	4.1	5.4	7.9	11.4	13.6
Other Bonds	1.1	3.8	4.2	4.8	6.2	8.3	9.8
Policy Loans	5.9	5.4	4.5	4.5	4.5	4.6	4.8
Real Estate	.8	2.5	4.9	3.9	1.1	.8	1.8
Cash	1.4	1.4	.4	.6	1.4	2.4	2.8
Other Assets		1.1	.6	1.4	1.8	1.3	2.1

(1) Not Separated in 1923 report.
Source: Life Insurance Association of America.

TABLE 9

RATIO OF EACH CLASS OF INVESTMENT TO TOTAL INVESTMENTS IN THE CLASS EAST SOUTH CENTRAL REGION

	1923	*1928*	*1933*	*1938*	*1945*	*1950*	*1954*
Farm Mtge.	5.0	4.9	4.5	5.4	5.5	5.7	6.0
Other Mtge.	3.0	4.3	3.6	3.0	3.4	4.8	15.7
State Co. Min.	5.6	5.6	5.3	5.6	3.1	2.7	4.0
Ry Bonds St.	8.2	8.2	8.0	7.9	6.2	6.4	6.4
Public Ut. Bonds	(1)	4.4	4.4	3.0	4.1	4.9	5.5
Other Bonds (2nd)	2.0	2.4	1.3	1.9	3.8	3.8	4.4
Policy Loans	6.3	5.8	4.8	4.5	4.1	3.8	3.7
Real Estate	1.5	2.6	5.0	3.5	1.1	.9	.9
Cash	1.5	3.4	7.9	.8	1.2	1.4	1.7
Other Assets		.7	1.1	1.2	.8	1.1	.8

(1) Included in other classes of bonds in 1923.
Source: Life Insurance Association of America.

TABLE 10

RATIO OF EACH CLASS OF INVESTMENT TO TOTAL INVESTMENTS IN THE CLASS SOUTH REGION

	1923	*1928*	*1933*	*1938*	*1945*	*1950*	*1954*
Farm Mtge.	20.3	18.2	17.3	20.5	9.7	26.6	29.3
Other Mtge.	15.4	17.9	16.2	13.3	21.4	22.1	43.9
State Mu. Bonds	14.0	24.8	22.1	20.3	11.6	15.3	16.9
Ry. Bonds	25.8	28.5	26.9	25.5	23.2	26.3	27.8
Public Ut. Bonds	(1)	15.8	15.7	12.6	22.4	25.9	28.6
Other Bonds St.	8.4	9.5	5.8	15.7	23.1	21.8	23.0
Policy Loans	23.8	20.0	18.9	18.7	18.2	18.5	19.1
Real Estate	6.0	11.9	18.1	6.0	4.4	7.4	10.2

(1) Not given separately in 1923.
Sources: Compiled from Annual Records of Investments of Life Insurance Association of America.

are some important differences among the three regions with respect to the use of life insurance funds. Farm mortgages are relatively most important in the West South Central region and are also growing most rapidly in that region. Other mortgages or urban mortgages remained fairly stable in the three regions from 1923 to 1945 and then climbed rapidly after 1950 until they now amount in the South to over one half of the investment in this class.[7] State and municipal bonds accounted for a larger percentage of this type of investment in the South Atlantic region than in the other two regions. The same is true of policy loans. For the South as a whole, the percentage of investments in public utility bonds and industrial and other bonds and stocks led the field in expansion, but this is not true of each component.

An examination of the distribution of life insurance company investments in the South discloses significant facts. In addition to exceeding in volume the reserves or savings for the area, the investments have gone into those areas of the southern economy which support basic economic development. Public utilities, industrial companies, railroads, farms, homes, and commercial building are all strategic factors in promoting economic growth and capital formation. And life insurance funds have been used in this direction.

Supplementary Value of Insurance

Another contribution to the more efficient operation of the South's productive system stems from the reduction of risk and the feeling of security which life and health insurance and annuities provide. Writing in 1901, A. H. Willett observed that "risk retards the accumulation of capital," and that "anything that reduced the degree of risk or the re-

[7] R. J. Saulnier, *Urban Mortgage Lending by Life Insurance Companies* (New York: National Bureau of Economic Research, 1950), p. 4.

luctance to assume it promotes capital accumulation."[8] While property insurance yields more specific benefits in this respect, business life insurance and group life and health insurance certainly tend to partially reduce risks and thus support capital accumulation. Actual data are not available to support this line of analysis, but it seems reasonable to assume that part of the benefit payments to beneficiaries and policyholders has been added to the stock of savings. Key man and partnership life insurance improve the credit standing of the business and reduce the risk of loss from liquidation of the business in event of premature death of an owner, partner, or strategic official of a firm. Individual enterpreneurs who have used life insurance to provide for the future feel less hesitant to undertake new ventures or expand their business activities.

Furthermore, life insurance companies have led the attack against diseases, ignorance, and other threats to life and health. As part of their insurance program the life insurance companies have rendered valuable assistance to the numerous agencies instrumental in promoting health and in extending the span of human life.

[8] A. H. Willett, *The Economic Theory of Risk and Insurance* (New York: Columbia University Press, 1901), p. 91.

Conclusions

In line with the data and analysis in this paper, the following observations appear to be defensible.

1. For the nation as a whole the institution of life insurance has played an important role in capital formation through stimulation of savings and channelling these savings into important and productive uses. The investment program has enough flexibility to enable the funds to be shifted readily from one area to another as demand for capital changes.

2. The contributions to capital formation in the South have been consistent, continuous, and significant. Investments in the South have regularly exceeded reserves, and the investments have flowed into those areas of the economy most essential for economic growth.

3. The influence of life insurance on social, medical, educational, and economic improvement has helped to provide those basic conditions essential for economic growth and captial accumulation.

A PHILOSOPHICAL APPROACH TO STUDENT INSURANCE SOCIETIES*

CHARLES C. CENTER

The University of Wisconsin

It has often been said, although not too seriously, that whenever three or more insurance men get together, the result is the formation of a new trade organization. While it can hardly be denied that the insurance industry is indeed well organized in all of its segments and strata, members of insurance faculties might wonder if perhaps the same comment could not also be made about their university students. Fraternities and sororities, clubs and societies, associations and activity groups abound to an extent that no student can avoid participation in a variety of group activities except by deliberate choice.

Student organizations of diverse types are as common in the schools of business administration as on the rest of the campus. Any suggestion that a new group be organized, such as an insurance society, needs to be well supported by evidence of an unmet need among a substantial number of commerce students. This is not a difficult prerequisite for a teacher of insurance in any school having a number of majors in this area. It is noted that most commerce student organizations are professionally or occupationally oriented. Students majoring in accounting, advertising, marketing, management, transportation, finance, and other fields will usually have organizations in which their common interests provide the basis for group activities. Many of these organizations have been in existence for some time and are well established, evidencing fulfillment of many of the needs of their members. An organization of and for the insurance students can hope to fulfill similar needs.

Still better evidence of the opportunity on many campuses for an organization of insurance students is found in the successful formation and operation of insurance student societies in several universities. There has been no extensive or documented research on this point, but discussions with colleagues in insurance instruction in The American Association of University Teachers of Insurance lead to the belief there may already be ten or more such student insurance groups actively functioning in the colleges and universities of this country.

The strongest evidence of the value of such groups, however, lies in the author's experience with a student insurance society initiated in the spring of 1947 at The University of Wisconsin. This society has had the support and interest of about 1,100 student members in the past ten years. The University of Wisconsin Insurance Society has been one of the largest student groups in the School of Commerce, and it has also been recognized as one of the most active. Its activities in-

* Editor's Note: In view of the growing interest among members of The American Association of University Teachers of Insurance in the establishment of a national student insurance society, it seems appropriate at this time to publish papers written by two persons who have had considerable experience in the formation and development of such organizations.

clude professional-type meetings, dinners, field trips, picnics, an intramural baseball team, an annual alumni newsletter, the establishment of the "Outstanding Insurance Student Award," and strong representation on the Dean's Student Board. Judgments implicit or expressed in the following derive from this ten-year experience of a close and active relationship with this group.

No organization, whether in or outside a university, can hope to function actively without serving the needs of its membership. Before taking any steps to initiate a student insurance society, the prospective faculty-sponsor first should reflect on the nature of these basic needs and determine which should be most actively met to best promote the organization's vitality and viability. Failure to determine the order of relative importance among various objectives may well result in subsequent actions or decisions by the sponsor which are inimical to the flowering of the new organization. It is suggested that a logical consideration of these purposes should be in relation to the several parties interested in the society. These interested parties are the students who will compose its membership, the university which gives cohesion to the group, and the insurance instructional department.

Values Derived from a Society

An insurance society can hold out many advantages for its student members. It is not necessary to do more than suggest the non-class opportunities for intellectual development and increased acquaintance with the insurance field. An even greater value for the students lies in the opportunity afforded for personal growth through working relationships with other students and with adults. The typical undergraduate is in the stage of being more than an adolescent but less than a mature adult. He frequently acts like the former but usually wants to be treated like the latter, at least by recognized adults. The opportunity of working on an equal basis with adults on the faculty and in the insurance business in managing the society and the chance to accept responsibility and to feel accomplishment create great values for the student members. Most students seem to be aware of this and, properly, consider these gains to be of greater personal significance than any "practical" information gained through meetings, field trips, and the like.

The university within which such a student society is organized quite apparently is benefited by the sound development of the group. New and stronger relationships develop between the university and the insurance industry in the area served. Both have many common interests and need to know and understand each other for their mutual good.

Finally, the insurance department itself, both as an area of instruction and in terms of the faculty personnel, has a real self interest in the development of a student society. The field of insurance is a rapidly changing and evolving segment of the social sciences. Insurance cannot be taught from an ivory tower, or it will soon become merely a course in the history of a business. Course content and the teacher's knowledge and understanding both need continuous contact with the applied side of the business. The student organization affords the insurance department faculty a natural and easy means to the personal contacts necessary to this end.

The Role and Problems of the Faculty Advisor

Fortunately the several interests just reviewed are not basically incompatible. All may be furthered without modifying significantly the broad program of the society. However, it is important that a faculty-sponsor consider these interests, particularly with reference to their rela-

tive importance. The conclusions he reaches will often determine the particular philosophy, practices, and techniques he will adopt in guiding the organization and operation of the society. Closely related to this consideration of objectives and a principal determinant of the faculty-sponsor's relationship to the group is his understanding of and ability to use those drives which most strongly motivate students.

A young faculty member, often inexperienced, less experienced, and lacking confidence, may be inclined to apply a semi-military psychology to motivate his students. "Do this because I tell you to or take the consequences," may be the underlying motivational force relied upon. Motivation of this nature is necessary in differing degree for most undergraduate students in faculty-student classroom relationships. The application of this motivational force by a faculty-sponsor in the formation and operation of a student insurance society would be clearly valid if the primary purpose is promotion of the interests of the faculty and of classroom instruction. This type motivation may be compatible with the promotion of the interests of the university vis à vis the insurance industry. It would be completely incompatible with what this writer considers to be the principal objective, affording students a new avenue toward mature acceptance of responsibilities. If the students even sense compulsion by the faculty-sponsor, enthusiastic, voluntary effort is largely replaced by a grudging attitude of minimal compliance. If the students' whole-hearted support is wanted, they must feel it is their society, not the faculty's; that decisions ultimately are theirs.

If the faculty-sponsor is to work primarily for the students' interests and must be ever conscious of avoiding all appearances of "laying down the law," what role can he assume within the organization consistent with its sound management? He can be adviser, counselor, mediator; he can be principal assistant to the student officers in the discharge of their duties. He can promote activities and solve problems by the powers of suggestion and persuasion—the logic of reason as presented among equals. His techniques are those of "it might be a good idea if you . . . ," "do you think the society should . . . ," "the alternatives seem to be . . ." . With an attitude of responsibility for the society among the students and an attitude of sincere respect for the faculty-sponsor as a person, it is not too difficult for the sponsor to lead the group so as to accomplish all of its potential objectives.

This sort of student-faculty relationship has its risks and disadvantages which should be mentioned. They can be illustrated by a few situations. All emphasize the additional effort and concern this sort of relationship is capable of imposing on the faculty sponsor. All are, sadly enough, within the author's experience.

A meeting has been set with an invited guest speaker whose goodwill and support are desired; the faculty-sponsor is concerned that attendance be high so as to make a good impression. Will student interest be strong and ninety or one hundred be present, or will only a baker's dozen appear? The fact that attendance was small and a poor impression of the organization was given the speaker was in large part the fault of the faculty-sponsor. He might frankly have explained to the student officers the possibility of outside assistance to the insurance program from the guest speaker, which in the end translates into added benefits for the students themselves. A request for a particular effort to get attendance should have been made. This was a lesson to the sponsor in being more frank with the student officers.

The students elect as their president a

suave, articulate individual who not only has no conception of the responsibilities of his office but frequently refuses to accept them when pointed out. The organization is continually in acute danger of bogging down due to his failure to provide executive leadership. Continuous effort through the year was needed to have the slack taken up by the other officers. The experience gave real meaning to the sponsor's later adjurations to seek the election to office of the group's most capable persons.

A student secretary inexplicably "loses" all of the records of his predecessors in office. This seemed to be a true case of "mysterious disappearance." Beyond a statement concerning the seriousness of the loss, no reprimand or excessive handwringing seemed in order. At least one group of students, those familiar with this case, can be expected to be vigilant custodians of such records as will be entrusted to them in the future.

Poor planning for the annual picnic results in over-buying of food and refreshments at a substantial unnecessary cost to the society. The consequences of slack planning were only too evident to all in the subsequent treasurer's report.

Having taken the position that a student insurance society is certainly possible in any university having a reasonable number of insurance majors, and having offered a judgment as to the educational philosophy most likely to make it succeed, the author recognizes that the faculty sponsor must still consider whether the results make it worth his time and effort. An affirmative answer can be given with assurance based on the Wisconsin experience. The rewards may be intangible; but they are nevertheless quite real, especially in terms of the satisfaction of seeing students measure up to new kinds of obligations of an adult nature and of having students come to see you as a friend and not just an impersonal classroom figure. The rewards may be substantial in terms of heightened interest and increased effort in study of the field. They may be tangible and of material value in terms of increased employment opportunities for graduates and of industry grants for scholarships and library purchases.

A more objective judgment is in the evidence that others who once participated as student members or observed the insurance society while graduate students in the department of insurance at Wisconsin have initiated similar organizations at other universities. It is noted as a matter of interest to members of The American Association of University Teachers of Insurance that Dr. John W. Cowee, Associate Dean, School of Business Administration, University of California, and Dr. Richard M. Heins, The University of Wisconsin, were charter members of the University of Wisconsin Insurance Society in 1948. Each subsequently initiated the formation of similar student groups at the University of California and at U.C.L.A. respectively. Dr. John S. Bickley, at The Ohio State University, Dr. William Howard, at The University of Florida, and Professor Donald Hayne at the University of Washington observed the Wisconsin group in its early years and subsequently formed similar groups in their respective universities. The author is content to leave the verdict on student insurance societies to these men and others, such as Dr. Strain, who have done the same.

A National Society?

It is only natural that with the present number of insurance societies existing independently in this country the question of affiliation or unification into a single national organization should arise. The spirit of college fraternalism seems strong in at least one region of the country, and the idea of a national in-

surance fraternity reportedly is being pushed with zeal. In those localities where interest runs high, the questions being considered reportedly relate to the means by which such a national organization can be established. The more fundamental question of gains and losses accruing from integration has not as yet been the subject of particular study on a broad scale.

It seems important that before a national student organization be organized considerable inquiry should be made into the need for and values to be derived from such a union. If this is not done, student zeal may lead to a possibly unwise or unnecessary development. Such a study might conclude that the principal result would largely be the adoption of the paraphernalia of fraternity and the creation of a national office with its overhead expenses to be borne by the students. If merely outward appearance of an organization of national magnitude and significance would result and there would be no true cohesion between the component groups, little would be gained but to create jobs and such prestige as they might carry for a few persons. Most teachers of insurance are probably alumni of social and professional fraternities; they can judge what values may have accrued to themselves from the national character of these groups both during and since their own student days.

If conversely a study should show that a national organization would clearly result in advantages to the student members who must bear the costs of structuring such an organization, then the question of ways and means to formation is appropriate. It is suggested that either the Research Committee of The American Association of University Teachers of Insurance or an ad hoc committee within that organization would be the appropriate vehicle for consideration of the issues involved. Regardless of the outcome of such study, the principal conclusion is reaffirmed: student insurance societies are a valuable adjunct to university insurance education.

THE INSURANCE SOCIETY AS AN INTEGRAL PART OF AN INSURANCE PROGRAM

ROBERT W. STRAIN *

Texas Board of Insurance

An integral part of the growth of collegiate education in insurance has been the institution at a number of schools of student insurance societies. These organizations are important to the insurance programs at these institutions as they offer many avenues for improving the students' understanding of insurance. This paper has been prepared to assist teachers planning to establish such a student group.

Objectives

An insurance society accustoms an insurance student early in his career to plan for continued education long after leaving formal classrooms. Moreover, it shows members of the insurance business who visit campuses the extent of collegiate insurance education and offers a common ground to all parties for the exchange of ideas. The basic objectives of such organizations can be summarized as follows:

Closer Relationship between Students and Teachers

Aside from the obvious opportunity afforded students to enjoy fellowship with other insurance students, an insurance society permits a closer relationship to exist between insurance majors and the insurance faculty. This advantage perhaps is more apparent as the size of an insurance program increases, particularly when one recalls the frequent criticism of conditions in large universities wherein students are unable to know their teachers outside of the classroom. The existence of a student group affords the teacher an opportunity to influence opinion for or against the insurance business as a vocation. His personal interest in the insurance majors, as expressed at such meetings, can be most instrumental in persuading these young people to enter this field.

Contact with the Insurance Business

An insurance society gives students an opportunity for contact with business leaders. The businessman obtains satisfaction by being able to return to the campus (which may be his alma mater) to discuss his favorite subject with interested listeners. Some value is also derived by the speaker from potential recruiting opportunities at the time of the meeting or later. The students benefit from meeting executives whom they can approach later for employment purposes. The faculty sponsor gains from his contact with these business people as the visitors have visual proof of the work being done in the insurance educational area.

Review of Current Insurance Topics

A student insurance organization provides a forum for the discussion of current insurance topics under different con-

* Editor's Note: At the time this manuscript was prepared and submitted Dr. Strain was Associate Professor of Insurance at The University of Texas. The material developed is based on his experience in developing such organizations at two state universities.

ditions than those found in the classroom.

Review of Career Opportunities

Student groups supplement the placement services of the school. Frequently a speaker will devote the entire evening to describing employment opportunities in either the life-health or property-liability segments of the business. It may be desirable to have one such meeting each semester or quarter, preferably at the beginning of the term. Leaflets or other descriptive literature may be distributed, and motion pictures of a company's training facilities may be shown. The faculty sponsor must be careful to avoid criticism that he is biased toward any one company. This criticism, if it develops, can be reduced by his attitude and actions and by the selection of firms varying in terms of type of organization, business written, geographic location, size, and personnel needs.

Field Trips

Students are given an opportunity through their society to participate in field trips. Careful planning is required to accomplish the objective of the trip and to minimize the time expenditure. This means that careful arrangements must be made with the guide of the facility being visited to assure compliance with a time schedule while covering the designated subject areas and to assure adequate communication facilities. Advance planning must also be made so that there can be participation by students. A group of ten or twenty is more manageable than larger groups.

Publicity

Field trips and the other activities of an insurance society are valuable tools in publicizing the existence and activities of the school's insurance program. Local newspapers and insurance trade publications are usually willing to give ample publicity to meetings, particularly if they receive sufficient notice and full details. An occasional feature article can be arranged if human interest material is present.

Organization and Management

A number of questions must be answered when the organizational and managerial aspects of a student insurance group are considered: How does one start? Is there sufficient interest to justify the effort? What type of program is desirable for the first meeting? Who should be chosen as a speaker? Should attendance be voluntary or compulsory?

Securing Permission to Organize

The first step in the organizational procedure is to comply with university regulations pertaining to the formation of a new campus group. Usually this is little more than routine, but a state university generally must be satisfied as to the nonpolitical nature of the organization's activities. Generally needed are a proposed constitution (subject to change when the group constructs their own), details of collecting and disbursing money, place of proposed meetings, and the name of the faculty sponsor.

Compiling a List of Prospective Members

A list of prospective members will reveal the potential size of the organization and serve as a start for soliciting interest in its formation. Names of insurance majors are readily available from records in the dean's office, registration procedures, or advising meetings. A letter requesting a show of interest can be sent each student, asking that he return to the faculty sponsor a short questionnaire in an enclosed envelope.

Announcing the First Meeting

The best publicity for the opening meeting is personal contact of the faculty

sponsor with interested students. This can be done through class meetings, telephone contact, or personal solicitation. It is felt that voluntary attendance is to be preferred over compulsory, for the latter is frequently reflected to the speaker through a listless audience, few questions, and a quick dispersal of the bulk of listeners immediately upon adjournment. The students also may resent intrusion by the teacher into their away-from-class time. However, attendance may be made compulsory on occasion without overdoing the practice, particularly when the students are told that only once a term will they be asked to attend on a required basis.

It is this writer's opinion that the enthusiasm, presence, and support of the faculty sponsor is essential for the organization's success. Without his guidance and constant assistance the project may not even deserve to be undertaken.

Selecting the Speaker

Suggested criteria for use in choosing a speaker are: Can he speak fairly well? Is he a recognized leader in his phase of the business? Is he likely to have a continuing interest in the development of an insurance program at the school?

Whether the program is conducted by a panel of persons or an individual, a leader of the insurance business is to be preferred over a less well-known individual who can perform equally well. There are several reasons for this view. One reason is to strive for quality performance. The prominent leader perhaps being more likely to accomplish this by virtue of his business accomplishments. Secondly, there is greater publicity value in a person well known to insurance people. An opportunity is created for future contact with the speaker for advice, assistance in placing students, and technical help on research projects. A fourth reason is that business leaders are probably quite interested in assisting in the development of an active insurance program because of their overall view and understanding of business needs. Finally, the continuous and consistent use of prominent insurance persons facilitates securing like persons as the program develops.

When planning the initial program, the adviser should seek the advice of several key men in the insurance community who are well acquainted with the prominent members of their particular line of business and who can give advice as to able speakers. If the objectives of the student organization are explained to them, they should be able to supply names of persons who might have an interest and aptitude for appearing before such a group. Ask for the best approach —whether through personal contact, telephone or letter, a third party, or through the key man himself. It has been the writer's experience that a correct approach has much value in bringing about a positive response. If investigation reveals the prospective speaker will be in the university city at the time desired for other business reasons, so much the better.

As much notice should be given the speaker as circumstances will permit, preferably four to eight weeks. He should be requested to keep his presentation informal. The reading of a paper should be avoided as its preparation makes too substantial inroads on an executive's time and students are little interested in such an approach.

The speaker's remarks should not be given publicity so that he will be encouraged to make off-hand remarks, which are often the highlight of the presentation. He should be encouraged to distribute any of his firm's descriptive literature which is pertinent to the occasion, since a take-home piece has some lingering value to the student as a reminder of the event.

The person chosen to introduce the speaker should be someone outside the school and perhaps be someone with whom the faculty sponsor wishes to maintain close liaison in the future.

The letter of appreciation to the speaker should indicate some of the students' comments. At the end of the year a membership certificate can be sent the speakers indicating honorary membership in the organization. The names of the speakers should be placed on a mailing list to receive any subsequent news items relating to activities of the insurance program.

Choosing the Subject

The choice of the subject matter is the speaker's, but often the faculty sponsor will be asked his opinion. Suggested criteria are these: (a) current material, preferably; (b) of practical value, if possible; (c) of limited technical nature; (d) occasionally on an inspirational sales type; (e) a subject requiring little preparation; and (f) a subject not covered adequately elsewhere in books or magazines. It is important that a balance be maintained among the following: life-health and property-liability insurance, home office and field, and the company and institutional approach. If the topics are carefully chosen, repeat performances every two years or so become a possibility.

Timing of the Meeting

The length of the meeting probably should not exceed the average class session (fifty minutes). When a question period is planned for the final twenty minutes, this leaves about thirty minutes of uninterrupted speaking time. The students who have an exam the next day or who do not want to stay for the question period should be allowed to leave at the end of the speaker's remarks, and advance notice should be given of this privilege.

As to frequency of the meetings, once every two weeks puts a load on speaking facilities as well as the faculty sponsor's and students' time. Once each three or four weeks is felt more adequate as a happy medium between "too frequently" and "not frequently enough."

Invitation to Membership

At the close of the initial meeting, officers can be elected and membership applications solicited. The practice of making available mimeographed forms will permit the collection of information to be later transferred to a membership card and certificate. Membership should be restricted to full-time students and should exclude local business people to retain the student atmosphere. If a member wishes to bring a local businessman to any of the meetings, he should be permitted to invite him as his guest. This keeps the organization from gaining the reputation that it is a "closed" group to outsiders. Membership should not be restricted to students majoring in insurance alone, for other majors frequently shift to the insurance concentration as a result of attending meetings.

Membership dues for the society are determined by its objectives and programs. A payment each term of $3.50 per student has been found sufficient to pay for the following items during the year: a picture in the yearbook, light refreshments at each meeting, a dollar or so of each member's check at a dinner meeting, postage, membership cards and certificates, and other minor expenses as they arise.

Some of the advantages in being a member should be cited at the beginning of the term. Aside from the benefits of the programs, additional gains are: privilege of taking field trips, contacts with businessmen who are potential employers, expenses of dinners defrayed, a frameable membership certificate, pic-

ture in the yearbook, student record to include membership in a student organization relating to his field of concentration, and inclusion of his name and personal data in the Employment Data Sheet Service. The value of this final advantage exceeds the price of the dues considerably.

Employment Data Sheet Service

Several years ago the writer became aware of the need for a list of students seeking information about employment opportunities in the insurance business. It appeared improper to release a list without the prior knowledge and approval of the students, and yet to fail in helping them contact potential employers left something to be desired. After securing approval from the students, a mimeographed list was made available on request to prospective employers as a service of the Insurance Society. It soon became apparent that more widespread distribution of this information would benefit the students and that recipients should not be restricted to persons who happen to know about and ask for such a list. In the summer of 1956 the writer sought a regional news publication which would agree to publish this material periodically. *The Insurance Graphic*, a biweekly publication in Dallas with a circulation at that time of from 3,000 to 4,000, agreed to publish this information once a year.

The data service includes the following items: name, mailing address, home address, military status, draft classification, school classification, expected graduation date, major concentration in school, employment preferences (life-health or property-liability), age, marital status, grade-point average, geographical preferences, and preferences as to sales or non-sales with several sub-headings under each of these preferences to assist the prospective employer in determining the student's interest. The response to this program has been gratifying.

Special Programs

In addition to the use of speakers at meetings, field trips, including sales congresses and legislative and governmental hearings, should be considered, along with films, slides, and other visual aids available to the insurance teacher. Field trips afford varied and interesting possibilities. Organizations which can be visited are insurance companies and agency offices, institutional headquarters, rating bureaus and statistical organizations, governmental offices, and the plant and insurance department of a large non-insurance corporation.

Conclusions

Should the insurance teacher undertake the responsibility of organizing and maintaining a student insurance organization? This writer has worked with two clubs at as many universities and the accomplishments would seem to merit the effort involved. The task is by no means an idle one. Perhaps some of the advantages and disadvantages should be cited to help bring about a decision.

The advantages to the faculty sponsor appear to be these: (1) the recognition it affords him and the insurance program he is developing; (2) the contacts with leaders in the insurance business which offer many side gains; (3) the chance to secure financial assistance in the form of special research grants, additional library funds, or research grants; (4) the opportunity to learn more about current business practices; and (5) the creation of a closer liaison with insurance students.

The disadvantages should not be overlooked. They appear to be: (1) the expenditure of from four to five hours per week, which may be time spent more profitably in the conduct of research; (2) the faculty member's contribution and its

significance may be discounted at the time promotion is being considered; and (3) the difficulties inherent in securing and maintaining an impartial balance in the conduct of the programs. The insurance teacher who desires to build an insurance program of value to as many persons as possible and who is dedicated to striving for quality offerings in that program would do well to consider an insurance society as an integral part of insurance education facilities.

NOTE ON THE EDUCATION OF ACTUARIAL STUDENTS

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Since the post-college education of actuarial students is greatly influenced by the syllabus of the Society of Actuaries, it seems reasonable to begin this paper with a discussion of the Society's examinations.

At the present time there are between 900 and 1000 Fellows of the Society of Actuaries, almost all of them in the United States and Canada. The number of Fellows has been increasing at a rate of about 40 per year. Fellowship is attained by examination.

Under the present syllabus there are eight examinations, called Parts. Both the passing grade for a given Part and the percentage of candidates who pass varies somewhat from year to year; thus there is no set standard. In 1957 the effective pass ratios were 60 per cent for Part 1, 34 per cent for Part 2, 38 per cent for Part 3, 43 per cent for Part 4, 51 per cent for Part 5, 56 per cent for Part 6, 45 per cent for Part 7, and 46 per cent for Part 8. The effective ratio is the number of passing papers divided by the number of papers on which the grade was one-half or more of the passing grade. From the Society's point of view the effective ratio, although arbitrary, is a better measure than the straight pass ratio. The reason is that a student who scores less than one-half the passing grade was probably not writing the examination seriously.

Examinations are given annually in May in various places throughout the United States and Canada. Most successful actuarial students study from 15 to 30 hours per week for about eight months each year. The standards are high enough so that becoming a Fellow within five years after graduating from college (not counting military service) represents good progress.

Syllabus of the Society of Actuaries

The following list of major topics covered by each Part of the Society's examination will give some idea of the scope. The number of hours refers to the length of the examination.

Part 1. One hour. Language aptitude (vocabulary and reading comprehension).

Part 2. Three hours. Algebra and calculus.

Part 3. Three hours. Probability, statistics, and finite differences.

Part 4. Six hours. Interest and life contingencies.

Part 5. Six hours. Construction and graduation of tables, sources and characteristics of principal tables, and underwriting.

Part 6. Six hours. Gross premiums, valuation of liabilities, non-forfeiture values, changes, life insurance law, and actuarial phases of agency problems.

Part 7. Six hours. Analysis and distribution of surplus, life insurance accounting, investments, and valuation of assets.

Part 8. Six hours. Group insurance,

pensions, individual accident and sickness insurance, and social insurance.

Parts 1-3 are called Preliminary Actuarial Examinations and are prepared by the Educational Testing Service, Princeton, New Jersey. These examinations are multiple-choice and machine-graded. The passing mark is set by a Society committee.

Parts 4 and 5 are called Associateship Examinations and are administered by the Society. A student who passes the first five examinations becomes an Associate of the Society of Actuaries (A.S.A.).

Parts 6-8 are called Fellowship Examinations and are administered by the Society. A student who passes all eight examinations becomes a Fellow of the Society of Actuaries (F.S.A.).

There are certain limitations on writing the examinations. Part 4 may be written only by a student previously credited with either Part 2 or Part 3, or both. Part 5 may be written only by a student previously credited with at least three of the first four parts. A Fellowship part may be written only by a student previously credited with the first four parts except that a student with credit for Parts 1, 2, 3, and 5 may write Parts 4 and 6 in the same examination period. In addition, a student may not write more than 12 hours in any examination period.

On February 5, 1958 the Society announced that credit for Part 1 would be given for a sufficiently high score on the verbal section of the Graduate Record Aptitude Test and that credit for Part 2 would be given for a sufficiently high score on the Graduate Record Advanced Test in Mathematics. In either case the Graduate Record Examinations must have been taken while a college student, graduate or undergraduate, and within two years preceding the filing with the Society of application for credit. The Graduate Record Examinations are administered by the Educational Testing Service. The decision as to what constitutes a sufficiently high score is made by the Society.

College Program

There is fairly general agreement among actuaries on the following three points:

1. An actuary is a businessman who is distinguished from other businessmen by reason of having a thorough grasp of elementary mathematics and life insurance mathematics.

2. The more an actuary knows, the better he is. This implies a broad education but does not define "broad."

3. An actuary should have a good background in college-level mathematics.

Despite the fairly general agreement on these three points, there is considerable disagreement on the questions of (1) a liberal arts education versus a business education, (2) a 4-year program versus a 5-year program, and (3) the value of specific courses in actuarial science. There are many points of view as to what type of collegiate studies are best for training an actuary. The major points of these can be summarized under seven headings.

1. Four years of liberal arts with a major in mathematics. No business or actuarial courses. The holders of this point of view feel that four years is the proper amount of time to devote to a college education, and that a liberal arts education is so important that it should not be diluted in any way. Business subjects in general and actuarial science in particular can and will be studied after the student leaves the campus.

2. Four years of liberal arts with a major in mathematics plus a fifth year at an actuarial school. In this context an actuarial school is defined as a college or university which regularly offers courses in finite differences and life contingencies at the level of the Society's syllabus. To the writer's knowledge there are six such

schools in the United States at the present time.

3. Four years of college with a major in business administration and enough mathematics to approximate a major in mathematics.

4. Number three above plus a fifth year at an actuarial school.

5. Four years of liberal arts with a major in mathematics and as many courses in business and economics as are consistent with a liberal arts degree.

6. Four years at an actuarial school with a liberal arts degree and a major in mathematics. Specifying actuarial school implies that the student will take the actuarial courses offered.

7. Four years at an actuarial school with a degree in business and some exposure to pure mathematics beyond a year of calculus.

There is considerable merit in each of these points of view. The preference of the individual student should probably govern. In the absence of a strong preference on the part of the student, the writer is inclined to recommend one of the following two programs:

1. Four years of college with a liberal arts degree under which 25 to 30 per cent of the student's course work is in mathematics and 15 to 20 per cent in economics and business. A fifth year at an actuarial school.

2. Four years at an actuarial school with a liberal arts degree under which 30 to 35 per cent of the student's course work is in mathematics and actuarial science and 15 to 20 per cent in economics and business.

Specific courses in actuarial science should, if properly conceived, constitute only 10 to 15 per cent of a student's normal course load for four years. Taking these courses interferes little with the pursuit of a broad education and saves the typical successful actuarial student one or more years in achieving the goal of Fellowship in the Society.

The reason the author is so reluctant in taking a firm position is that, given the necessary mathematical aptitude and industry, an actuary's success is determined largely by his judgment. With actuaries themselves unable to agree on the ideal program for an actuarial student it seems presumptuous for anyone to be dogmatic on the question.

PUBLICATIONS AND RESEARCH

Book Reviews

THE GRIM TRUTH ABOUT LIFE INSURANCE. By Ralph Hendershot. G. P. Putnam's Sons, New York, 1957. 118 pages. $1.95.

Reviewer: James L. Athearn, Associate Professor of Insurance, University of Florida.

The grim truth is that Mr. Hendershot is extremely critical of certain aspects of life insurance in the United States. However, he highly recommends what he considers to be the proper use of life insurance; and not all of his criticism can be ignored. There is considerable truth between the covers of this little book and those in the life insurance business should read it carefully.

Mr. Hendershot's major criticism of life insurance is that it costs too much. This, he says, is partly a result of the fact that investment and protection are combined. In his view, the protection feature of life insurance is a very valuable social device; but as an investment, a life insurance policy leaves much to be desired. While there may be some merit in this contention, the author's demonstration of the "overcharge" in the premium for an ordinary life policy is somewhat confused and misleading. He breaks the premium down into three parts: pure protection, loading, and the savings element. He points out that as savings increase, the amount at risk declines; and the policyholder is, in effect, becoming a coinsurer. As the savings element accumulates at compound interest, it grows fairly rapidly. Mr. Hendershot assumes that the increase in the cost of the pure protection resulting from the increasing death strain will be offset by interest on savings, which is not true of all life insurance contracts. But, if this were the case, then the savings growth would not benefit by compound interest. The attempt to prove an "overcharge" is weakened by errors such as this.

The angry discussion of cash values is also somewhat misleading. Why can't I have my cash value and still have net insurance of $10,000? That is, why can't I take the cash value and have the face of the policy, too? It is difficult to believe that the author does not understand the nature and function of reserves and the nature of cash values, but questions of this kind are appealing ammunition for a criticism of whole life insurance.

Real error creeps in when term insurance is compared with whole life. "Take term and put the savings out at interest for your own benefit." Twenty year term is certainly cheaper than whole life but nothing is said about its lack of permanence and of the tremendous increase in cost when it is converted. Arguments in favor of term plus your own savings program assume that you will save the difference. Permanent insurance seems to induce more people to stick with a savings program than such a program combined with term. If the policyholder is strong-willed and has some knowledge of investments, then he doesn't need the service; but what about those who are too weak and ill-informed to carry out such a program? The real question is whether or

not the policyholder pays too much for such service.

When the author attacks lapse ratios and high-pressure, high-cost selling, it seems to this writer that he is on firm ground; and insurance people should listen carefully. If it is true, as Hendershot claims, that the average policy remains in force less than ten years, then the cost of inducing its purchase may be rather high. If this average includes short-term policies, it may look worse than it actually is. In any event, early lapses are terribly expensive and are surely evidence of poor selling in many instances. Insurance company executives are, of course, conscious of these problems and anxious to solve them; but their existence, which may be a result of the tremendous drive for growth, results in well-justified criticism.

Dividend practices by mutual companies are criticized on the ground that such dividends are inadequate. In view of the fact that surpluses grow every year, there is at least some truth in the suggestion that current refunds to the policyholder are not as high as they could be. In view of the conservative nature of all cost estimates made and the method of calculating regular reserves, the criticism of extra reserves and surplus has some foundation. However, when reference is made to "gains from lapses" that occur because cash values are smaller than reserves, the author overlooks a fact he previously pointed out—that most lapses are within the early years of the policy and the large reserves may have represented a loan from surplus. Whether or not reserves and surplus are too large for the industry as a whole is a good question. When the answer becomes affirmative, then the policyholder who has a participating policy should get his share, not just part of it.

Hendershot's solution for the individual is well worth considering. He suggests buying renewable, convertible term insurance and investing the savings in premium in life insurance company stock. If the future growth in value of these stocks is similar to that of the past, such a program could be much more rewarding than combining protection with investment in a life insurance policy. Share your company's prosperity. "Be a stockholder as well as a policyholder!"

A major problem in life insurance is getting the applicant to buy what he needs. As the author shows, commission scales can be the deciding factor and if they are slanted toward high premium "investment" policies, that is what the applicant will be sold. "Policies should be geared to clients' needs; not agents' greed." This is surely acceptable advice for the professional life underwriter. Unhappily, commission scales and company preference for high-premium business do not always work to this end.

Some of the author's suggestions for the improvement of life insurance are realistic and merit serious consideration. Others seem to reflect confusion concerning how the business functions. Some are idealistic notions about our whole economic structure, not just life insurance.

FAMILY MEDICAL COSTS AND VOLUNTARY HEALTH INSURANCE: A NATIONWIDE SURVEY. By Odin W. Anderson with Jacob J. Feldman. McGraw-Hill Book Company, Inc., New York, 1956. xix+ 251 pages. $6.50.

Reviewer: O. D. Dickerson, Associate Professor of Insurance and Real Estate, Florida State University.

This book describes the findings and methodology of the first nationwide survey of morbidity and medical care expenditures since the report of the Committee on the Costs of Medical Care in 1933. The National Health Survey in 1936 dealt with morbidity but not with

costs of medical care. Since that time there have been a number of small-scale local studies, but none on a national scale. Unlike the earlier national surveys, the study reported in this book includes data on the distribution of voluntary health insurance and its effects in providing for payment of medical care expenditures.

The text, which reports and discusses briefly the major findings, runs for only 90 pages. The balance of the book is devoted to two appendices. Appendix A consists of 115 pages of statistical tables. Appendix B, written by Feldman, describes the methodology of the study and discusses the reliability of the conclusions. The scope of the study is best indicated by describing the topics of the chapters of the main text. These include current enrollment in health insurance plans; nationwide charges for health insurance and their distribution among families; the effect of health insurance on such charges; and the utilization of hospital, surgical, and other services.

The source of data was personal interviews according to a carefully prepared questionnaire supplemented by confirmatory information from employers, hospitals, and other agencies. The families to be interviewed were selected on a multistage area probability basis. The sample included 8,898 individuals in 2,809 families. The method is described in detail in Appendix B and estimates of sampling and other types of error are included. For many of the observed characteristics, the estimated standard error of estimate has been computed. This permits the establishment of "confidence limits" which add greatly to the value of the study to the serious student. This section also includes comparisons of the population characteristics of the sample and of some of the results with data obtained from independent sources. Generally speaking, the correspondence is quite close.

The results of the study are hardly startling. However, they are valuable in confirming results of other studies; in indicating tendencies toward change; and in shedding some new light on certain areas, particularly the effect of insurance coverage on the impact of medical care costs. Unfortunately, in the latter area, which is perhaps the greatest contribution to new knowledge of the study, the most severe criticisms of technique apply.

It is easier to criticize the study for what it does not do than for what it does do. One regrets that certain techniques of definition and classification prevent the development of truly meaningful results in some of the areas. One of the greatest difficulties arises from the selection of the family as a unit for the study. A family is defined as a group of persons related by blood or marriage and resident in the same household. This definition is selected because "the family is the logical unit for discussing the charges for personal health services, because it is an earning, spending, and consuming unit in our society." (page 25) However, especially in three generation households, persons related by blood or marriage may constitute two, three, or even more earning and spending units. The only recognition of such a situation was to count as separate families two married couples in the same household.

This definition of "family" may distort the results in a number of instances. For example, in computing any values on a per family basis, this would tend to result in overstatement of their magnitude. Similarly, since any family, one or more of whose members has any type of insurance, is counted as an "insured family," the proportion of insured families would be overstated, the average expenditures of insured families would be overstated, and the effect of insurance benefits in meeting these costs would be understated.

Unfortunately, there is little distinction between different types of families. The

data on utilization and coverage are also presented on a per individual basis, but there is no attempt to proceed from these figures to estimates of costs, insurance coverage, and insurance benefits on the basis of different types of family. Presumably, it would be possible to develop all these types of data on a per individual basis, by age and sex, in such a fashion that they would be additive. Thus we could compute, for example, the distribution of medical care expenditures for families of two parents and three pre-school children, for one-person retired families, etc. Undoubtedly there are tremendous differences between types of families in these regards. Some of the data are presented in such a way as to be presumably additive. It appears that the use of the individual data in this fashion might result in some differences in conclusions. Only one of Anderson and Feldman's published tables take the age and sex of the family head into consideration. This is Table A-12, "Percentage of Families with Voluntary Health Insurance." Apparently none takes family size into consideration.

Despite the great variations in average expenditures and average insurance benefits by size of family and ages of members, the proportion of expenses met by insurance benefits is remarkably constant. The range is from 14 to 29 per cent, but 12 of the 16 computed percentages fall into the range of 22 to 26 per cent. Whether this is a true characteristic of the data or merely the result of the averaging process is difficult to say.

It would be nice if one could compare insurance benefits per person receiving benefits with medical care costs incurred by such persons, but the latter data are lacking. It is meaningless to compare the average costs per insured person with the average benefits per recipient of benefits, since the latter are always greater. This is an example of the point made above, that slightly different methods of collecting or tabulating data would have led to more meaningful conclusions.

There are two possible approaches that would have resulted in more meaningful conclusions. One would be to use the individual as the unit in all tabulations, and build up family figures by an additive process as in our illustration. This has the objection that not all the individual figures are additive, unless certain unrealistic assumptions are made, such as the assumption that either all family members are insured or none are, or that either every family member incurred expense in the year or that none did. The other approach would be to continue to use the family as a unit, but to classify the data on the basis of age of members and size of family into a reasonable number of groups. The objection to this method is that some of these groups might be so small that credibility would be impaired. However, this could be avoided by proper design of the experiment in the first instance. It is probable that these factors of size of family and age of members produce more variation than some of the other factors which they have analyzed in more detail, such as geographic region, urban-rural distribution, and income. Indeed, one might find that a good proportion of the variation by some of these other attributes was explained by the variation by age and size of family.

Only one of the authors' conclusions is manifestly misleading. This had to do with the effect of insurance in meeting the costs of medical care. Relating average benefits per insured family to average costs per insured family will understate the proportion of charges that would be covered if all members had insurance coverage. Moreover, they counted as insured any family with any type of policy, no matter how inadequate, which provided some benefit for medical care expenditures. A far more meaningful evalu-

ation of the effectiveness of insurance would be obtained if the families could be broken down according to the completeness of insurance coverage on the various family members, and the types of insurance carried. Without such breakdowns, dealing with averages is no more meaningful than dealing with national aggregates; indeed the results are very close. Such figures may be a measure of what proportion of our annual health bill is met by insurance, but they are no measure of the efficacy of insurance as a device for avoiding the impact of severe costs in a particular family in a particular year. With slightly different design, the study could probably have produced a convincing demonstration of how insurance protects families against severe financial loss from poor health. Unfortunately it largely fails to make this case.

Despite these criticisms, the book makes a worthwhile contribution to knowledge of health insurance and medical care expenditures. It is an excellent technical job and will long serve as a useful reference for those interested in the field.

GROUP DISABILITY INSURANCE. By Jesse F Pickrell. Richard D. Irwin, Inc., Homewood, Illinois, 1958. xxii + 255 pages. $5.00.

Reviewer: O. D. Dickerson, Associate Professor of Insurance and Real Estate, Florida State University.

This book is the ninth in the series of Huebner Foundation Studies, which with one exception[1] represent Ph.D. dissertations completed by Huebner Fellows at the University of Pennsylvania. As a dissertation it represents a competent job, and like most dissertations is more useful as a study than as a textbook. The organizational pattern is typical of studies of this type. It covers the basic nature of group disabiilty insurance, analysis of the master contract, legislation, sales, installation and administration, premium rates, underwriting, and reserves. The study helps to meet a need for detailed material regarding group health insurance. The only sources readily available prior to its publication were some of the lectures in the Huebner Foundation volume *Accident and Sickness Insurance*, the *Study Notes* (Part 8) of the Society of Actuaries, and a variety of journal articles.

The study is limited to group health insurance as written by private insurance companies. While a dissertation must necessarily be limited to a rather narrow area, the book would be more useful if it included franchise and blanket insurance and covered the Blue Cross, Blue Shield, and independent plans. The book would also be helped by more detailed treatment of rate-making techniques and by fuller treatment of claims administration and regulation. While these areas are not overlooked, they might deserve a separate chapter.

This book is unlikely to find much use as a textbook. The specialization of collegiate education has not yet reached the point where courses in group health insurance are common. However, it might be used in connection with Miller's *Accident and Sickness Insurance Provided Through Individual Policies*, Herrick's *Total Disability Provisions in Life Insurance Policies*, Osborn's *Compulsory Temporary Disability Insurance*[2] and Dickerson's *Guaranteed Renewable Disability Insurance*[2] in an advanced course in health insurance. While these books, even in combination, will not provide a comprehensive treatment of the entire field, they could be supplemented by some ad-

[1] Willett's *Economic Theory of Risk and Insurance* is a reprint of a 1901 Columbia University dissertation.

[2] Neither of these has yet been published. The Osborn book will be published in the near future by the Huebner Foundation. Publication arrangements for the Dickerson book are not yet complete.

ditional reading in specialized areas. Another use for this book in an advanced course would be in connection with Gregg's *Group Life Insurance* and Black's *Group Annuities* in a course on insurance company group employee benefit plans.

Unfortunately, some of the terminology of the book is not in accord with the best current theory. The preferred designation of the general area is now considered to be "health insurance" rather than "disability insurance." This involves both a desire to "accentuate the positive" and to emphasize the parallel with life insurance. The newer associations in the field have adopted this terminology and it is hoped that all will follow suit. As combined plans become more common, the phrase "life and health insurance" will certainly fit better than "life and disability," which involves a logical discrepancy. A more serious choice of terminology appears in Pickrell's designation of disability income insurance as "accident and sickness." This term has often been applied to the area as a whole, and it is unfortunate that he has applied it to a particular coverage within that area. Clarity can be achieved by referring to such coverages as (disability) income or loss-of-time coverages. The former term is preferred because of its greater simplicity.

In the chapter on reserves Pickrell fails to develop adequately the theoretical differences between types of reserves. He should distinguish more thoroughly between liability reserves and surplus reserves; between insurance reserves and expense reserves; and between premium reserves and loss reserves. He frequently fails to classify and merely describes; and in at least one case when he does classify, he does so incorrectly. For example, he classifies reserves for future contingent benefits as loss reserves. Unless the event insured against is conception, these are properly premium reserves despite the location of the item on the convention blank. The distinction between reserves for statement purposes and contract year reserves is not the major dichotomy he makes of it. The reserves are essentially similar even though methods of computation differ; certainly this distinction should not represent the major basis of division of the chapter.

Pickrell's final chapter is devoted to an evaluation of group health insurance. His critique fails to recognize the extreme limitation of the utility of group disability income insurance which results from the very short maximum durations provided in the vast majority of policies. The disability income loss is in the aggregate much larger than expenditures for medical care, and it is nowhere nearly so well insured. There is room for much further growth in group health insurance in improving the benefit provisions of existing plans to meet more nearly the severe disability income losses. Another area of great potential which he largely neglects, both in his final chapter and in his discussion of types of coverage, is comprehensive medical care insurance. Policies of this type resemble major medical, but are written with a small deductible and are designed to provide complete coverage rather than to supplement basic policies. Space precludes a discussion here of the many advantages of such plans over the heterogeneous collection of benefits and limits found in a typical plan built up by adding coverages successively. However, this is a development which represents the "wave of the future" in health insurance and deserves consideration in a study of this type. This is especially true since the pioneer development in this area has been under group plans.

Despite these criticisms the book is a valuable addition to the literature of insurance. It deserves a place in the libraries of teachers and serious advanced students and will be useful as a standard reference in its field.

COUNTY PATTERNS OF INSURANCE SALES. A Spectator Marketing Service. Chilton Publications, Philadelphia, Pennsylvania, 1957. 130 pages. $67.50.

Reviewer: Oscar R. Goodman, Associate Professor of Business Administration, University of California (Berkeley).

Chilton publications has inaugurated a new marketing service for the insurance industry through the publication of the first edition of *County Patterns of Insurance Sales*, subtitled "Your County, U.S.A." The Spectator has enlisted the assistance of Dr. J. M. Gould, Managing Director of Market Statistics, Inc., who is best known for his work in preparing the annual *Survey of Buying Power* published by *Sales Management Magazine*. He was asked to combine his statistical talents with Spectator's insurance know-how to prepare a volume of statistical data which they hoped would "provide the key to a whole new era in insurance marketing."

Probably the best understanding of the quality of the data presented and its usefulness in the marketing of insurance can be gleaned from the authors' introduction to the data. They write: "After several annual volumes have been prepared, we all should know much more about the distribution and the influences on insurance sales." This reviewer assumes that the specific reference is to those who have prepared this particular volume.

The authors of this repository of data, said to be helpful in the estimation of insurance sales potentials, after making a study of present techniques and methods used by the industry in establishing such potentials, conclude that: "it is a fact that the systematic, scientific analysis of insurance markets has been a neglected field, judging from the paucity of published materials in both marketing and insurance journals." Market analysis departments of many leading insurance companies such as The Prudential Insurance Company of America will be intrigued by this conclusion.

The best work in this area that the authors were able to discover, was a study made in 1927 by Professor D. R. G. Cowan on factors underlying the sales of life insurance. They say that the chief difficulty involved in using Dr. Cowan's method today is that there is an absence of data for areas smaller than states. Not only do the authors propose to remedy that difficulty, but they also propose to show an estimate of insurance premium potential by county and metropolitan area for various types of insurance—specifically: life premiums, shown by ordinary, industrial, and group; accident and health premiums, shown by group, individual, and hospital medical expense; workmen's compensation premiums; fire and extended coverage premiums, broken down by residential, mercantile, and industrial; and automobile premiums broken down by bodily injury liability, property damage liability, and physical damage.

The presentation is entirely in the form of dollar figures, evidently indicating industry potential for the category shown. Included are some additional county data on population, personal income, and several other similar categories. These and other county figures are estimates of the authors, based upon procedures used in the production of the annual *Sales Management Magazine Survey of Buying Power*.

Dollar premium figures in each of the above categories are shown for practically every county in the United States. The county potentials offered for use in 1957-58 are evidently allocations of actual state dollar premium volume in 1955. The authors have prepared formulae which they say can produce estimates for each of the categories mentioned above. For example, the potential for ordinary life insurance is calculated by relating the

sale of ordinary life insurance to the income status of particular families. They are somewhat vague on the specifics of the calculations, but they have calculated the total amount of ordinary life purchased by five income groups in the United States in 1955. Massachusetts is shown as an example in their discussion. They show that Massachusetts has a variable share of the national total of families in each of the five income groups. The reviewer assumes that the figures on income groups in Massachusetts were based on 1950 census data which included an income question. The reliability of those income figures has been open to serious question. On page 20 of the 1957 edition of the *Survey of Buying Power* the authors point out that a considerable portion of personal income, nearly one-fifth, was not accounted for by the census figures. However, *Sales Management* concluded that the undercoverage was uniform for individual income groups and types of income and that it was therefore a simple matter of adjusting for what they considered the three major sources of understatement: people not reporting income, those reporting but understating income, and those earning over $10,000. These adjustments were evidently made for every county in the United States. It is somewhat regrettable that the authors of "Your County, U.S.A." have not seen fit to include such a detailed explanatory foreword in that volume. One usually finds the explanatory foreword in the *Survey of Buying Power* a great help in the course of using, or not using, the data.

The example showing the derivation of the estimate of county ordinary life insurance premium potential for Massachusetts is interesting. The percentage of families found in each group is applied to total premiums produced nationally for each group, and the Massachusetts potential by income group is ascertained. It happened that in 1955 actual Massachusetts premium volume in ordinary life was 6 per cent above the estimate prepared. The authors tell us:

> . . . this does not necessarily mean an error of 6 per cent, because it is possible that sales in Massachusetts were favored by exceptionally good sales efforts in 1955. An average "error" of 10 per cent here can be regarded as indicating a close statistical "fit." We depict this visually by the ordinary life scatter pattern in which actual sales are plotted against the corresponding "predicted" values, both figures expressed as percentages of the U.S. total. There can be no question about the statistical relationship involved. In technical language, the linear relationship explains more than 90 per cent of the total variation and could not possibly be due to chance.

It is comforting to find such certainty among statisticians dealing with problems of forecasting and quota allocation. It is a goal toward which others in the field can aspire.

The county potentials for Massachusetts ordinary life insurance were based upon a consideration of the proportions by income group in each county, and the result is summarized in the tabular presentation by dollar figures for each county for ordinary life insurance premium volume. The authors assure the potential user of the data that:

> If the formula offers predictions on a state level that involve an average error of no more than 5 per cent, it would be safe to assume that a comparable margin of accuracy would obtain for the potentials for smaller areas, i.e., counties.

This conclusion deserves more than a mere passing comment. In future issues of the work, the authors might expand on the procedures employed to maintain the degree of accuracy as the parts of the whole are developed. It would no doubt be of interest to others working in the same general field.

Other areas presented include automobile and workmen's compensation. The authors express some doubt about the workmen's compensation premium vol-

ume by county and state for the United States because they encountered the most extreme divergencies of actual to predicted sales in this area. Basically, workmen's compensation is treated as a function of manufacturing employment. However, the authors note that New York State, with 21 per cent of total compensation sales, had only 12 per cent of total manufacturing employment and that ". . . Ohio, with over 8 per cent of total manufacturing employment, accounted for no workmen's compensation premiums at all." They say that the difficulty is due to:

> . . . the variability of state laws regulating workmen's compensation and perhaps because much of the sale of such insurance can be centered in states other than those in which the covered plant is situated. . . . Nevertheless, since the dollar totals for each state shown here have validity as actual premiums paid, a useful purpose is served by distributing the state totals among counties, and manufacturing employment appears to be the county indicator best suited for this purpose.

Workmen's compensation premium potentials are shown by county for every state except Ohio and North Dakota. No footnotes are shown on the data sheets presenting the state figures explaining the omission of county workmen's compensation figures for these two states, but in the introductory material, the authors point out that they are aware that Ohio shows up without premiums paid (to private insurers) because of its monopoly of compensation writing by the state fund. With the exception of these two states, however, the user of the data will have no trouble discovering county workmen's compensation premium potential volume; since there are no footnotes with reference to this problem on any other state tabulations or in the explanatory material, it must be assumed that other problems, such as those generated by competitive state funds, were satisfactorily solved.

In subsequent editions, the reviewer would like to see the "useful purposes" specified, particularly in view of the unspecified solutions of the problems of private and public underwriting, rating variations such as those arising out of the character of the employment, out of state writings, and other sometimes troublesome difficulties which the less sophisticated encounter in this kind of work.

Automotive insurance premium volume by county broken down by bodily injury liability, property damage liability, and property damage, is available to the interested user. The authors tell us that good scatter relationships were obtained by relating auto insurance sales to automotive store sales and to an urban population density factor, using different weights for the different types of insurance. The author's comments follow:

> Here again, some extreme divergencies by certain states appear unavoidable. Thus in New York State, sales of auto liability insurance appear abnormally high because of high rates in the New York City area, and by the same token sales of physical damage insurance in New York are unusually low. It might appear that in the New York area the purchase of high cost liability insurance is made at the expense of the physical damage line. The same tendency, on a smaller scale, obtains in Massachusetts, New Jersey, Ohio, and Pennsylvania.

The reviewer found the use of these qualitative statements quite illuminating. At the very least, they do demonstrate that the compilers of the data, evidently surrounded by the finest of statistical mechanical equipment and procedural skill, are aware that there are times when reflection and hypotheses can be of assistance in the analysis of market data, particularly data on county automobile insurance premium potential. It would seem that what "might appear" could very easily have been tested statistically, for a hypothesis applicable to a state geographical area in these lines of insurance

cannot usually be indiscriminately applied to county areas. Divergencies on the county level, equally important for this particular purpose, are ignored by the hypothesis.

Data is also presented on county premium dollar potentials for accident and health, broken down by group, individual, and hospital medical expense, and on fire and extended coverage, broken down by residential, mercantile, and industrial. The general quality of the volume is maintained in these sections.

The reviewer is of the opinion that the authors fail to distinguish between insurance as a product and, for example, soap as a product. The general approach taken and the methodology vigorously applied to actual 1955 premium dollar volume by state is patterned after a sales analysis and development program that one would apply to a product widely consumed, identical in quality, and with a large repeat demand. However, in the merchandising of insurance sales volume alone is considerably less important than the quality of underwriting selection.

The problems of insurance as a service, with loss ratio as a major point of company concern, with industry characteristics unlike those of the usual industry selling goods to the same market, and with an institutional framework necessitating a fresh and original marketing approach, must be solved before a work of this kind can be useful in the marketing of the service. The reviewer would like to see such problems discussed in future revisions of the work.

In general, companies interested in the analysis and planning of the results of sales efforts in the insurance industry have two major approach possibilities. One is to assume that results will be directly related to the number of contacts made by the agent and therefore to stress agent-buyer contact in both number and quality of the selling contact. The other possibility is the economic approach where the company will approach its own sales potential from the point of view of the service offered, the number of potential buyers, their desires, and their ability to buy as measured by past and expected performances. The insurance approach from the economic side is complicated by the agency structure and by the necessity to discriminate greatly among both would-be sellers and would-be buyers of the service.

The reviewer is of the opinion that the authors of this work would be helped if they were to carry out some of the market analysis that they recommend to purchasers among their own potential market, and thus ascertain more clearly the sort of data needed and the ways in which it can be put to work to result in a more serviceable and economic marketing of the service of insurance. For example, except for special exposures such as crop risks, few companies keep major underwriting records by counties as a general practice although, mechanically, it could readily be done if economically useful. Since the present study indicates that the statistical problem of putting potential data on a county basis for the merchandising of insurance by lines needs a fresh and original approach, exploratory sessions between the potential users and the providers of the service might provide an insight into the approach to be taken. Probably the greatest use of county figures made by users of this volume will be of the non-insurance figures presented, which are county estimates of population, personal income, occupied dwelling units, and auto retail sales. *The Survey of Buying Power*, selling for $5.00, provides the same type of information in greater detail.

There is one specific suggestion offered by the authors on how the data presented are to be used by the reader. The user is advised that for detailed sales analysis and planning, estimates on a county level

are necessary. He is advised to rearrange his own sales data or the data published in the book and to make the necessary comparisons to determine his relative share of the market. The authors say that this is the starting point for all intelligent sales planning and development programs. Although this statement may seem somewhat dogmatic, it illustrates clearly the understanding demonstrated by the authors of the problems involved in the marketing of an insurance service.

This reviewer felt that a much more complete introductory section would have been useful to potential users, particularly a detailed discussion on the methods of calculation, including a consideration of the obvious problems which had to be solved and a specific discussion of the solution. Specific suggestions, with examples, as to the uses for which the data are best suited, from the developers' point of view, might have been of some assistance. The modesty displayed along these lines is not helpful to the potential user. The state data are presented along geographical group lines, such as Pacific Coast States and East North Central States. A table of contents in the beginning lists the page numbers of the various state presentations, which are not in the ordinary alphabetical order. The figures would be more accessible if each geographical section were preceded by an introductory sheet listing the states and the page numbers. The quality of the editing, as reflected by adequate tabular footnotes, paging, organization, and reader orientation, is in keeping with the general tone of the volume. The statistics are published with paper covers and pulp magazine binding. Since the volume sells for $67.50 and includes 130 pages, of which the first ten are not numbered, it is evident that the publishers concluded that here, at last, was a collection of statistics whose quality would speak for itself, without the necessity of a durable wrapping.

The authors do say, however, that:

> . . . all of us who have worked on this book want to hear suggestions on the problem of allocating any insurance figures by counties. These comments should be helpful in improving these figures for future annual issues of this volume.

It is difficult to believe otherwise.

CONSUMER CREDIT INSURANCE. By Daniel P. Kedzie. Published for the Consumer Credit Insurance Association by Richard D. Irwin, Inc., Homewood, Illinois, 1957. 212 pages. $5.00.

Reviewer: Leland J. Gordon, Senior Professor of Economics, Denison University.

The sponsor of this publication, The Consumer Credit Insurance Association, was organized in 1951 by twenty-two companies specializing in credit life and credit disability insurance. The stated purposes of the Association are (1) to act as a trade association, (2) to promote high ethical standards, and (3) to disseminate information and provide for the exchange of ideas among and between its members. In 1956 a Research and Education Committee was appointed to assist scholars in their study of consumer credit insurance, to stimulate original and more thorough research, to assist in the dissemination of research findings and essays, and to cooperate with other institutions and associations in educating the American public. The Association sponsors a pamphlet series and a monograph series. Dr. Kedzie's study is the first to deal solely with the subject of consumer credit insurance.

In 1954 the Subcommittee on Antitrust and Monopoly Legislation of the Senate Judiciary Committee discovered abuses in the consumer credit insurance business which included sales of credit insurance far in excess of money loaned, failure to deliver the policy to the borrower, pay-

ment of excessive commissions, pyramiding of policies by requiring the borrower to purchase a second policy upon refinancing his loan without cancellation of the first policy, and failure to make a refund of unearned premiums when insurance is cancelled on the payment of the loan.

The majority of the officials interviewed by the author and the authors of many current periodical articles accept the thesis that the magnitude of abuses is usually inversely related to the caliber of regulation within a given state. Thirty-six states have legislation which ranges in effectiveness from partial to satisfactory. The author concludes that the percentage of the national population currently subjected to consumer credit insurance abuses is small.

Under credit life insurance the life of the borrower of money or purchaser of goods is insured in connection with a specific loan or credit transaction. Under credit accident and health insurance a borrower of money or purchaser of goods is indemnified in connection with a specific loan or credit transaction against loss of time resulting from accident and sickness. At the end of 1956 some 32 million policies and certificates of credit insurance were in force, mostly in the area of credit life insurance.

Group credit insurance contracts require 75 to 100 per cent participation and a minimum group of 100 new debtors each year. The premium is 75 cents per thousand dollars per month on the outstanding balance. Premiums are paid by the creditor but are generally passed on to the borrower. Rates on individual policies are generally $1.00 per year per hundred dollars of the initial amount of indebtedness paid by the borrower. In most states an employee of the lending agency is licensed to write credit insurance and to receive a commission.

The deductible principle has been incorporated by the use of waiting periods, most commonly fourteen days for accident and health policies.

The growth of installment credit sales emphasized the risk that a debtor might die before repayment of his loan, leaving a co-signer to discharge the obligation. Mr. Arthur J. Morris, founder of the Morris Plan Bank in 1910, concluded that insurance was the solution to this problem. When various insurance companies rejected his idea, he organized the Morris Plan Insurance Society in 1917 as a stock company in New York. Business flourished under the slogan "No man's debts should live after him." Since that time the business of the Society has expanded substantially and many other companies have entered the field, including CUNA Mutual Insurance Society. By 1956 two hundred thirty-seven companies were writing credit insurance.

Attempting to secure a mass market at low prices, the industry has liberalized underwriting by waiving physical examinations and by using a single rate for all ages except those under 18 or over 65. Most companies write tailored plans to meet the needs of a particular lender.

Compensation rates for lenders-agents are substantial, ranging from a minimum of 40 to 55 per cent of each premium dollar. In some cases commissions were as high as 60 to 65 per cent, and one was 85 per cent. The author states flatly that "commissions of such great magnitude are difficult to justify. . . ." Yet companies resist commission reduction for fear they will lose business. The term "reverse competition" refers to the tendency for competition to take the form of commissions paid to the lender rather than low rates to the insured borrower. The term "captive market" refers to the position of the lender who is able to foist insurance upon the debtor who is in an inferior bargaining position. "If the situation is viewed with any . . . objectivity,

one sees that advantage has been taken of the debtor in several instances."

The majority of abuses in lending practices and sales of consumer credit insurance have been associated with small loan companies. Some insurers will not accept the small loan lender for group coverage under any condition. "This aversion apparently stems from the reluctance of these insurers to subject their good reputations to possible defamation."

Several large department stores are now using consumer credit insurance.

It is difficult to compare consumer credit insurance costs with other forms of insurance because of the way in which it is sold, the persons eligible to purchase it, the small policies which average $365, the short term of the policy, the nature of the coverage, and the inadequacy of reliable statistical information.

A Subcommittee of the National Association of Insurance Commissioners reported in 1954 their findings resulting from a study of the industry. Among the abuses they reported were the sale of excessive amounts of insurance, pyramiding, overcharging, nonpayment of claims, coercion of the borrower to force the purchase of insurance, and the sale of credit insurance by unlicensed and irresponsible individuals. Kedzie found ". . . a growing feeling among Insurance Commissioners that the current rates for consumer credit insurance are excessive and that the amount of compensation paid to lenders is the major contributing factor." The regulation in Kansas and Kentucky conforms closely to the Model proposed by NAIC. Thirty-two states have not promulgated any special regulations. They have depended primarily upon statutory, administrative, and judicial law; opinions of the Attorney General; or regulations by state banking departments. The regulatory picture is uncertain and confused.

The chief problems in the industry seem to be excessive commissions paid to lender-agents. Regulation is clearly indicated. Another problem involves the incidence of the insurance premium. "Instances have been noted where the premium charged the borrower under a group consumer credit life insurance policy was in excess of the premium forwarded to the insurance company. . . ." Consequently it is recommended that state laws require that the premium charged the borrower must be consistent with that made to the lender. The author bespeaks general support for the Rules and Regulations of the National Association of Insurance Commissioners.

Dr. Kedzie's work reflects an impressive range and thoroughness of research. He provides the reader with a very helpful eleven-page bibliography. His book should certainly be read by those in the industry and by state regulatory officials. College teachers who wish to keep informed of new developments in insurance will find this a helpful reference.

MULTIPLE-LINE INSURANCE. By G. F. Michelbacher. McGraw-Hill Book Company, Inc., New York, 1957. 660 pages. $8.75.

Reviewer: C. H. Scott McAlister, Teaching Associate in Insurance, Indiana University.

" 'Would you tell me please, which way I ought to go from here?' 'That depends a good deal on where you want to get to,' said the cat." This question, posed by Alice in Wonderland and answered by the Chesire Cat, was posed in similar form by the National Association of Insurance Commissioners' Diemand Committee in 1943 regarding multiple line powers for non-life companies. Interested parties, through this committee, returned the verdict of gradual approach to the question of allowing and enabling

one insurer to write all insurance other than life. 1957 found all states allowing multiple line powers to other than life companies, and thus the need for such a book was established.

The phrase "multiple line insurance" bears two connotations: multiple line insurance policies, e.g. homeowners and family automobile policies, and multiple line insurance companies, i.e. those writing both fire and casualty coverages. The book, *Multiple-Line Insurance*, deals with the latter concept, that of the multiple line insurance company. This book treats the organization, operation, and some of the problems of other than life companies.

Thirteen insurance specialists, several of whom are prominent insurance executives, contributed fifteen of the twenty-four chapters to this edition. Together with the author, they bring many years of experience—largely in casualty insurance—and much knowledge of insurance to the writing of this text.

The authors treat the subject matter, which when explored only through reading may prove a bit complicated and dull, in such a fashion that it becomes less complicated and at times, fascinating. The chapters are sufficiently broken with sub-topics that one need not read endless pages prior to finding a logical place to pause and reflect. The authors write in an extremely lucid style, and at least on one occasion, e.g., "The typical auditor . . . with eyes like a codfish . . ." (page 158), insert some humor in the work. This reviewer considers all of the foregoing elements essential in a text which is to be used for undergraduate study, but not quite as essential for a text to be used in graduate study.

It is the opinion of this reviewer that the title, *Multiple-Line Insurance*, is in fact a misnomer, and that the author might better have used "Casualty Insurance" as a title more indicative of the content.[1] Approximately one-sixth (100+ pages) of this book consists of new material. The presentation of the new material was largely occasioned by enabling legislation for multiple line powers, the S.E.U.A. decision, and Public Law 15. Such material is found mainly in the following chapters: The Multiple-Line Idea, Multiple-Line Covers, The Financial Statement, Development of Government Supervision, and Present Systems of Government Supervision. In the main, the other chapters in the book have been up-dated by addition to each of one to four pages dealing specifically with fire and marine insurance.

The author states in the preface "Many of the chapter headings are the same as those in the earlier book [*Casualty Insurance Principles*], but the treatment has been broadened to comprehend the enlarged scope. . . ."

This statement raised at least two questions in this reviewer's mind. One, was it necessary to broaden all the material in *Casualty Insurance Principles* to make such material applicable to the multiple line concept? Two, where broadening was necessary, was the material in *Multiple-Line Insurance* substantially different from that in *Casualty Insurance Principles*?

When one examines some of the basic concepts of fire, casualty, and multiple line insurance, it becomes apparent that the words fire, casualty, and multiple line may be used interchangeably without altering the meaning or intent of such concepts. Recognition is given this fact at Indiana University, and probably elsewhere, where a number of those concepts basic to both fire and casualty insurance

[1] The American Institute for Property and Liability Underwriters, Inc. list on page 26 of the 1957-58 CPCU Announcement, the "3rd Edition" of *Multiple-Line Insurance*. Had the book been published under the title *Casualty Insurance Principles*, it would truly have been a third edition.

are dealt with in the same course, *not* titled "Principles of Insurance."

That material which required broadening due to the multiple line concept was dealt with largely as stated previously, i.e., up-dating by the addition of one to four pages dealing specifically with fire and marine. There is little rewriting except for those chapters mentioned above. The mention of problems brought about by multiple line underwriting are by no means exhaustive. In the chapter on underwriting for example, the implications of "underwriting" by the multiple line agent are not considered. A good fire risk is not necessarily a good liability risk, a fact of which both the agent and the home office underwriter need be aware.

The author states in the preface that "Some of the statements in this book do not exactly describe current conditions in the insurance business." This left the door open for a statement such as the following: "Legislation has been enacted in all states permitting the combination of such perils from the various fields under one contract." (page 94). This condition does not exist in the state of Oregon.

The text might be made more useful to some teachers if questions were provided at the end of each chapter for classroom discussion. A more extensive use of footnotes would be helpful to anyone using the text for research.

Contrary to the opinion of a distinguished reviewer of this edition,[2] this reviewer would not take *Multiple-Line Insurance* to Mars.

Multiple-Line Insurance is a welcome addition to insurance literature, as a step towards the recognition of problems created by the establishment of the multiple line company. This edition serves to make one aware that we have just begun to scratch the surface of the critical problem areas of multiple line insurance. Perhaps it is not too early to again ask "which way I ought to go from here?"

[2] Ratcliffe, Davis. "Multiple-Line Insurance," *Education Exchange*, No. 32, January 1958, p. 8-ML-1.

TRENDS IN COMPANY GROUP INSURANCE PROGRAMS. By Harland Fox. Studies in Personnel Policy, No. 159. National Industrial Conference Board, Inc., New York, 1957. 44 pages. $1.50.

Reviewer: Dorothy Schrage, Industrial Relations Section, California Institute of Technology.

The study presents a concise, factual picture of the changes that have taken place from 1949 to 1956 in the group insurance programs of 187 companies. The period of the Conference Board's comparison is a significant one in that negotiated health and welfare benefits gained special prominence during those seven years. The report is concerned primarily with trends in those group insurance plans which provide death benefits; replace wages during temporary, nonoccupational disability; and help employees meet medical care expenses.

Of the 187 companies surveyed, 177 are engaged in manufacturing and 10 are public utilities firms. Most of the companies are unionized and are located in the northern industrial states. The number of employees in any one firm ranges from 67 to 600,000; the total number of employees covered by the survey approximates 2.1 million.

While the contributing companies represent only a small and specialized segment of industry, the findings generally parallel those that have been brought out by other more comprehensive surveys. Two general trends were apparent from the Conference Board's comparison. For every benefit analyzed, the level of benefits has increased since 1949. In addition, somewhat more companies now pay the entire cost of the benefits than was the case in the earlier period.

The discussion of medical expense plans is presented against the background of the general advance that has occurred in medical expense protection. The survey calls attention to the fact that in 1947 only seven per cent of all medical bills in the nation were covered by insurance. By 1954, however, voluntary health insurance plans covered 44 per cent of the cost of all hospital care and 25 per cent of other medical expenses. Contributing importantly to this expanded coverage, according to the study, is the development of company group insurance plans for employees and their dependents.

The three approaches to medical expense protection—the basic plan, the supplemental major medical plan, and the comprehensive medical plan—are discussed in some detail. For the traditional basic medical plans, survey findings show that not only have the benefits been increased substantially but also more companies contribute toward the costs of the programs. This latter trend is reflected both in the increased proportion of programs paid for entirely by employers and in the proportionately fewer plans paid for completely by the employees.

The study takes note of the extensive growth of major medical coverage as protection against catastrophic illnesses and injuries during the years since the first such plan was installed. Nationwide data indicate that over five million people were protected by this type of insurance as of the end of 1955, an increase of 138 per cent over the number protected in 1954. Reflecting the general trend, 39 or about 25 per cent of the participating companies had major medical insurance plans in 1956 and at least an additional five per cent of the surveyed firms planned to institute such programs in the near future. Because the development of the major medical plans has been so recent, none of the surveyed companies had such arrangements in 1949. While the survey indicated that the 39 plans are fairly well scattered, with no particular industrial concentration, the plans generally are found in the larger companies. No firms employing less than 500 employees have arrangements for major medical protection. All but two of the company plans are supplemental to the basic medical protection. In the two exceptions, "comprehensive" plans which are substitutes for the basic medical protection and also provide major medical benefits are in force. Typically, in the surveyed company plans the employee pays 25 per cent of the major medical bills after he has met a $100 deductible and after basic benefits have been paid. Most of the plans apply to disabilities in a single year, with the maximum benefit ranging from $5,000 to $10,000 for each person. Twelve plans, however, apply to each single disability and provide a maximum benefit of $5,000 for each disability. The costs of the protection are shared by employees and the company in the majority of plans. Thirteen of the plans have the employee pay the premium, however, and in four instances the company pays the entire cost.

Reflecting both the expansion of medical expense protection and the growing concern for the welfare of older persons, thirty of the plans in the surveyed companies provide medical benefits for retired employees, as compared with only two in 1949. All but seven of these thirty companies reduce employees' benefits at retirement, with this reduction being achieved in one of three ways. In some instances, benefits for each disability are reduced; in others, benefits normally payable for each disability are made available instead for each calendar year; and in the third approach, benefits usually available for each disability are set as the maximum for the lifetime of the retired employee. In the majority of cases, the company pays the premium for the retired employee, although in some instances the

employee pays part of the premium. Under only a handful of plans does the employee pay all of the cost.

Group insurance plans designed to replace some of the wages of employees away from work because of nonoccupational disabilities were found in somewhat more than three-fourths of the companies in both 1949 and 1956. Although the number of plans showed no increase over the period, both the amount of benefits and the duration of benefit payments have been liberalized over the seven-year period. Furthermore, there has been an increase in the proportion of noncontributory plans.

Every one of the surveyed companies had a group life insurance plan in 1956, as compared with 82 per cent in 1949. Among the noticeable developments since 1949 is the provision of separate plans for hourly and salaried employees. There has also been a slight shift toward noncontributory plans and a considerable increase in the size of benefits. In both years, somewhat more than one-half of the plans furnish salary-graduated benefits. Little change has occurred in the prevalence of life insurance for retired employees; about one-half of the companies studied provide benefits now and also did so in 1949. The amount of benefits has advanced only slightly in contrast to the upward trend in benefits for active employees. There has, however, been an increase in the number of noncontributory plans—82 per cent of the current plans, but only 64 per cent of those in 1949, are paid for by the company.

Group accidental death and dismemberment insurance was provided by nearly 60 per cent of the companies in 1956, compared with 49 per cent in 1949. Usually this protection is furnished as a supplement to the group life insurance program; and the type of benefits, coverage, and financing generally depend upon the characteristics of the company's life insurance plan. As with life insurance, there has been a slight increase in the number of noncontributory plans since 1949, and benefits also have increased over the period.

As one of a series of continuing studies of group insurance that have been conducted by the Conference Board since 1927, the report is a concise and comprehensive presentation of developments that have occurred within the panel companies from 1949 to 1956. While the findings are limited by the number and composition of the firms studied, the comparisons that are presented represent a contribution to the growing volume of surveys demonstrating trends in the group insurance field.

FINANCING UNEMPLOYMENT COMPENSATION: OHIO'S EXPERIENCE. By Edison L. Bowers, Paul G. Craig, and William Papier. Bureau of Business Research, College of Commerce and Administration, The Ohio State University, Columbus, Ohio, 1956. 314 pages.

Reviewer: C. Arthur Williams, Jr., Associate Professor of Economics and Insurance, University of Minnesota.

Within the past decade, several state studies of unemployment compensation costs have been published. These studies generally (1) develop a range of cost estimates on the basis of several economic and legislative assumptions and (2) suggest a sound system of financing these benefits. This Ohio study is the latest in the series and profits from the experience of earlier studies as the authors acknowledge in the preface, in the text, and in footnotes. Well-written and logically developed, the study also suggests some new approaches to the problems involved.

Estimates of the cost of unemployment compensation expressed as a per cent of taxable payrolls are developed for the decade 1953-1962 under four economic assumptions and five legislative alterna-

tives. The cost estimates are determined by the traditional formula:

$$\frac{\text{Average weekly benefit}}{\text{Average weekly taxable wage}} \times \frac{\text{Average compensable unemployment}}{\text{Average covered employment}}$$

Most of the study is devoted to an estimate of the second ratio in the above formula, the first ratio being presumed to equal that in 1952 except for some relatively simple adjustments for legislative changes.

Chapter I describes the general approach and summarizes the findings. This chapter should be restudied after the reader has completed the book. In fact the reader may prefer to skip this chapter in his first reading. Chapter II reviews the legislative and financial history of the Ohio Unemployment Compensation System since 1936 and is of interest to nonresidents because of its emphasis upon underlying principles. In Chapter III, the authors develop estimates of covered unemployment as a percentage of the covered labor force for 1920-1951 on the assumption that a composite unemployment compensation law similar to the 1952 law had been in effect over the period. The derivation of these estimates makes interesting reading and is typical of the careful approach used in the study. The derivation includes adjustments of 1940-1951 data on continued claims for legislative changes and for unemployment among persons who had exhausted their benefits. The 1920-1939 estimates are based upon an interesting application of economic reasoning to average monthly employment figures which were fortunately available for Ohio. These latter estimates extend the historical period upon which the estimates for the future are based.

Alternative legislative assumptions are considered in Chapter IV, the assumptions being based upon unemployment insurance philosophies, legislative trends in other states, and the political climate in Ohio. Pages 92-93 summarize alternative assumptions for four types of provisions in the law and for *four* combinations of these alternatives. Unfortunately these pages created problems for this reviewer for: (1) the study develops cost estimates for *five* sets of legislative alternatives (see page 237, for example) and (2) unlike the summary on these pages, which compares the alternatives with the 1953 law, future pages continually refer to the 1952 law. Some reasoning resolves the difference, but it would have been better if this possible confusion could have been avoided.

Chapter V recognizes the possible effects of wage guarantees upon unemployment compensation. The authors conclude that for the present the effects are negligible because of the small number of such plans, but their discussion of the possible implications is a timely addition to studies of this sort. Chapter VI describes the Ohio economy, most of the space being devoted to demonstrating that "as the nation goes, so goes Ohio" because it "mirrors the nation." Economic assumptions of what "could reasonably happen" are described in Chapter VII. Four "cycle patterns" including a most favorable and least favorable pattern are based upon an analysis of past experience and the assumed conditions, the cycles "being formulated in terms of broad national and international affairs, making no special allowance for economic conditions unique in Ohio" (page 152). This section is much more brief than comparable sections in other studies, but in the light of Chapter VI this treatment is justified.

Chapters VIII and IX contain the most difficult, but also perhaps the most interesting, material in the study. In Chapter VIII the authors describe the basic cost formula and the method of deriving esti-

mates of compensable employment as a per cent of covered employment for the period 1920-1939, for each of the assumed cycle patterns, and for five legislative alternatives affecting compensable employment. Considerable space is devoted to the development of a distribution of unemployment by duration for each month during these periods and the determination of the "compensable-duration-interval" under three legislative assumptions affecting the duration of benefits. Appendices A and B answer two important questions that may arise in the reader's mind as he studies the chapter.

Chapter IX presents first the estimates of compensable unemployment as a per cent of covered employment derived in the manner described in Chapter VIII. The authors then use these data to emphasize some significant relationships between compensable unemployment and economic variables and between compensable unemployment and legislative variables. After a brief discussion on the other ratio in the basic formula, the cost estimates are summarized on pages 236-238.

Chapter X on sound financing contains the most original basic ideas. Various financing methods are considered; but the authors favor a system which "over the cycle . . . maintains continuity of the program without curtailment of the benefits, maintains solvency without borrowing, and balances costs and revenues without varying the over-all tax rate" (page 240). Reserves are viewed solely as an instrument of sound financing. The reserve target which "is defined as the reserve which should be on hand at the beginning of the assumed cycle pattern to assure 'sound financing' over that cycle" (page 248) is equal to the greater of the following values: (1) one year of average cost under the assumed cycle-pattern to allow for the time lag in receipt of tax income, plus another year of average cost to provide for minor variations from projected unemployment, plus the largest negative balance of total operations to date at the end of each year's activity; or (2) "one year of average cost plus the aggregate negative balance that would result from operating results if the two highest cost years of the most unfavorable pattern occurred . . ." (page 253) immediately. Thus the authors depart from the simple-multiple concept. The chapter concludes with a determination of tax rates based upon the cost estimates and a comparison of existing reserves with reserve targets. The principle of experience rating is not questioned, but two methods of adjusting the present plan to achieve level-premium taxes and *prospective* financing are proposed for long-range consideration. In addition, several short-run adjustments are suggested which will produce more stable average tax rates.

Appendix C contains seven tables of computations which are too detailed to be included in the text and is followed by a bibliography containing a rather complete list of references for further reading.

The book is attractively printed and contains relatively few typographical errors. One of the most disturbing typographical problems arises in connection with the use of superscripts and subscripts in the probability formulas used to determine the unemployment-duration distribution. For example, on page 180 the same term appears as h^1 and h_1; on page 184, a^1, u^1, and s^1 become u_1, a_1 and s_1; and on page 192, there appear h_1, a_1, u^1, and s^1.

This reviewer strongly recommends this book as supplementary reading for a course in social insurance, as an introductory study for instructors not familiar with studies of unemployment compensation financing, and as a reference work for groups undertaking such a study in their own state.

Publications Received

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COST-OF-LIVING PENSIONS AND VARIABLE ANNUITIES: THEIR STATUS AND OUTLOOK. By Geoffrey N. Calvert. Alexander & Alexander, Inc., New York. 12 pages.

CURRENT PROBLEMS IN INSURANCE. College of Business and Public Administration. University of Arizona Press, Tucson, Arizona, 1958. 48 pages. $1.00.

FINANCIAL INTERMEDIARIES IN THE AMERICAN ECONOMY SINCE 1900. By Raymond W. Goldsmith. Princeton University Press. $12.00.

PENSION PLANS WITH SPECIAL FUNDING. John Hancock Mutual Life Insurance Company, Boston, Massachusetts, 1957. 22 pages.

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SELECTION OF RISKS. By Pearce Shepherd and Andrew C. Webster. Society of Actuaries, 1957.

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Childress, Donald R. (1951)
Taxation

THE TAXATION OF LIFE INSURANCE COMPANIES. *By Donald R. Childress.* Unpublished Ph.D. dissertation, University of Pennsylvania, 1951. 182 pages.

Purpose: (1) To examine the historical background of the taxation of life insurance companies in order to understand the difficulties encountered in taxing life insurance companies and to present in résumé form the status of taxation of these companies under Federal, state, and local tax laws. (2) To outline the criteria for a sound program of taxing life insurance companies.

Materials and Methods: Source materials for the study were obtained from official reports of Federal and state court decisions, statutes at large, Congressional debates and hearings, and through personal interviews.

Facts Presented: (1) Certain characteristics peculiar to life insurance companies necessitate special tax treatment: (a) the long-term nature of the services provided, because of the increasing use of settlement options, (b) the wide use of life insurance as a means of achieving family protection and family savings for millions of small savers, (c) the difficulty of determining net income, and (d) the substantial element of savings in the premium in the early years used to build up a reserve that make possible a level premium throughout the life of the policyholder. (2) The history and development of taxation by the Federal, state, and local governments, together with a study of the extent and character of taxation of life insurance companies in aggregate. (3) The arguments for and against preferential tax treatment of life insurance companies are examined, and the various alternative methods of taxation are examined for merit.

Conclusions and Recommendations: (1) Problems of local taxation: (a) It has been indicated that the tax on real estate of life insurance companies, imposed at the local level, has not constituted a serious burden because of the limited investment of the companies in this type of property. (b) Far more serious at this level of government has been the use of premium taxes, income taxes, license, and occupation taxes as means of raising additional revenue from life insurance companies. (2) Problems of state taxation: Premium tax statutes now exist in all states and account for the major portion of revenue collected by the states from life insurance companies. The practical result of the operation of a high premium tax in a given state has always proved highly inequitable. (3) Problems of Federal taxation: The past experience of the Federal government has demonstrated the futility of attempting to apply a corporate income tax—a profits tax levied upon the annual operations of an enterprise—to a life insurance company. The difficulty of taxing life insurance companies at this level will continue to be one of attempting to design a tax measure which will yield adequate revenue without exceeding the abilities of the companies to pay.

Wermel, Michael T. (1956)
Plans for Meeting Risk Problems

ALTERNATIVE APPROACHES TO SUPPLEMENTAL UNEMPLOYMENT BENEFITS. *By Michael T. Wermel.* Benefits and Insurance Research Center, California Institute of Technology, Pasadena, California, September, 1956. BIRC Publication Number 2. 20 pages.

Purpose: To examine the different arguments concerning supplemental unemployment benefit plans integrated with state systems of unemployment insurance and to analyze the various alternative proposals to the integrated plans. The study was designed as an introductory approach to the problem of coexistence of private and statutory programs of unemployment insurance.

Materials and Methods: Analyses were made of union contract provisions and releases of labor and management affected by the supplemental unemployment benefit plans. Literature on the subject and on the several alternative approaches was reviewed extensively. Interviews held with union and company representatives supplied material concerning the basic issues in the field of supplementation and integration.

Facts Presented: The issues of supplementation and integration were defined from both labor's and management's view and the main features of supplemental plans integrated with state unemployment insurance systems were described. The possibility of substituting some other types of plans was explored, and suggestions for modifying state legislation to alleviate any ill effects of integration were analyzed.

Conclusions and Recommendations: All labor groups cannot be expected to raise supplementation as a bargaining issue, at least for some time. Employment patterns, the union's position, and the interests of the union members may make this benefit less important than other collective bargaining objectives. All union groups, however, can be expected to favor increases in unemployment insurance benefits. The desired liberalization could be accomplished by statute or negotiation or interrelationship of the two. To labor in general the integration of supplemental plans with state systems of unemployment insurance represents a desirable approach and one for which precedents already have been set.

Some management groups have negotiated supplemental unemployment benefit plans and support the principle of added unemployment benefits for their released workers. Many other management representatives, however, fear the consequences of both the supplemental and the integration features of these private plans upon the state systems, the labor market, and business processes in general. While the adoption of various private arrangements as substitutes for the present supplemental plans might be satisfactory to labor, it would not eliminate the objections of this group. Even if the integration aspects were disposed of, the element of supplementation would still exist. To satisfy the objections of those firms that do not provide supplemental benefits, some company representatives have proposed that legislation be enacted to permit self-insurance within the framework of the state system for employers negotiating supplemental benefits in excess of state maxima.

The enactment of such enabling legislation appears unlikely in the next few years, if only because of the difficulty in obtaining agreement among the states. It would seem that current supplemental plans will continue in effect and that others will be adopted in many companies and industries during coming years. For a considerable time, however, state systems of unemployment insurance will constitute the only source of protection for the majority of workers. Meanwhile, long-range coordinated study should be given to the effects of supplementation and to the best means of providing income security to workers.

Gray, Robert D. (1956)
Plans for Meeting Risk Problems

APPRAISING AND INTEGRATING EMPLOYEE BENEFITS. *By Robert D. Gray.* Benefits and Insurance Research Center, California Institute of Technology, Pasadena, California, October, 1956. BIRC Publication Number 3. 24 pages.

Purpose: Employee benefit plans within companies generally are initiated over the years to meet various needs and in response to different pressures. Seldom does a company's program containing a variety of benefits come about as a result of over-all planning. The purpose of this study is to outline the approaches to evaluating the different benefits and integrating them into a comprehensive program.

Materials and Methods: The discussion was based on extensive review of company practices and of industrial relations literature, especially that pertaining to employee benefits. The need for coordination of benefit plans within a company was emphasized by the results of two surveys of employee benefits in Los Angeles firms that were conducted by the Industrial Relations Section of the California Institute of Technology in recent years.

Facts Presented: (1) Definition of employee benefits. (2) Inventory of employee benefits. (3) Analysis of needs of employees and employers. (4) Steps in evaluation of employee benefits.

Conclusions and Recommendations: While benefit plans are essential to employees, employers, consumers, and society, to achieve their greatest value the plans must be integrated to give maximum protection against a variety of losses. Such integration of plans resulting from legislation, union agreements, and company policy can be accomplished once the plans are inventoried and evaluated against: (1) cost of plans; (2) needs of various groups of employees; (3) needs of employers; and (4) understanding of the objectives of the plans.

Wermel, Michael T. and Beideman, Geraldine M. (1957)
Plans for Meeting Risk Problems

SUPPLEMENTAL UNEMPLOYMENT BENEFIT PLANS: THEIR ECONOMIC AND INDUSTRIAL RELATIONS IMPLICATIONS. *By Michael T. Wermel and Geraldine M. Beideman.* Benefits and Insurance Research Center, California Institute of Technology, Pasadena, California, January, 1957. BIRC Publication Number 4. 51 pages.

Purpose: To bring together and to evaluate the many arguments which have been advanced concerning the impact the development of supplemental unemployment benefit plans might have upon economic and industrial relations processes.

Materials and Methods: A comprehensive review was made of literature pertaining to the subject in order to extract and analyze the varying arguments about supplementation. Provisions of representative supplemental plans were obtained from original sources.

Facts Presented: To make the analysis of economic arguments and industrial relations considerations more meaningful, a brief historical summary of the development of various income continuity arrangements preceded the major discussions. Major emphasis was given to: (1) the emerging patterns of supplemental unemployment benefit plans; (2) the impact of the benefits on the general economy, business decisions and processes of supplementing companies, and the labor market; (3) industrial relations aspects of supplementation. Discussions of the economic subjects were preceded in each case by tabular reviews of representative arguments for and against supplementation.

Conclusions and Recommendations: In evaluating the economic impact of the plans, over-all consideration was given to two factors. In scope, supplementation is likely to be largely confined to mass production industries and will not affect more than five or six million workers during the next several years. From a cost standpoint, company charges for supplementation in plans negotiated so far appear to be substitutes for direct wage increases. With these two assumptions in mind, on balance the existence of supplemental plans should have relatively little effect upon economic processes. Some of the detailed conclusions are noted below: (1) Considering the anticipated size of the coverage, the plans are expected to exert very little bolstering effect upon general purchasing power or in the promotion of economic growth. (2) If the costs of supplementation are considered as substitutes for direct wage gains, the existence of the plans should not affect the profit-making abilities of companies nor product prices any differently than would any similar addition to labor costs. (3) The moderate financing provisions of current plans should not in themselves encourage companies to stabilize production and employment; neither are the financing responsibilities sufficiently large either to accelerate or retard the introduction of technological improvements. (4) As does the addition of any employee benefit, supplementation will tend to foster an employer-employee attachment and thus to some extent influence labor mobility. (5) Work incentives of jobless employees are not expected to be adversely affected so long as a differential is maintained between total unemployment benefits and usual take-home pay.

Industrial relations implications for supplementing companies include: (1) integration of supplementation with other employee benefits; (2) development of recruitment, job placement, and retention procedures to achieve a flexible work force; (3) consideration of supplementation costs as they affect the wage structure; and (4) formulation of policy relative to the state unemployment insurance system. Companies without supplemental plans will be concerned with (1) possibility of supplementation as a bargaining issue in coming negotiations; (2) comparability of their compensation rates and recruitment success with those of supplementing companies; and (3) developments in the statutory programs of unemployment insurance.

EMPLOYEE BENEFIT PROGRAMS, AN OUTLINE. *By Michael T. Wermel and Geraldine M. Beideman.* Benefits and Insurance Research Center, California Institute of Technology, Pasadena, California, May, 1957. BIRC Publication Number 6. 32 pages.

Purpose: To group employee benefits by function in order to facilitate consideration of the various benefits within their appropriate framework. This brief outline has been prepared as a guide to discussions in the field of employee benefits.

Materials and Methods: Employee benefits, the statutory ones and those initiated through collective bargaining or unilaterally by employers, were classified and described in relation to their objectives.

Facts Presented: A general discussion of the objectives of employee benefit programs and the ways in which they are initiated precedes the more detailed treatment of the different categories of benefits. The various programs are classified in accordance with their intent: (1) protection against income loss resulting from death of wage earner, old age, unemployment, and disability; (2) compensation for expenses connected with illness and injury; (3) benefits to supplement wage income and to promote employee savings; (4) paid time off; and (5) various employee facilities and services. The concluding chapter outlines the essential elements of an employee benefit program.

Conclusions and Recommendations: The establishment of a benefit program which is good for the employees as well as good for the company requires that the interrelationships of a variety of factors be considered: (1) determination of employees' basic protection needs; (2) reconciliation of these needs with the cost of the program; (3) integration of company plans with statutory programs; (4) timing the start or revision of benefit plans; (5) employer-employee communication on benefit plans; (6) administration of the benefit program; and (7) continuing analysis of the benefit program in terms of objectives and cost.

Wermel, Michael T. (1956)
Costs of Coverage

POSTWAR CHANGES IN CALIFORNIA UNEMPLOYMENT INSURANCE EXPERIENCE, 1946-1950 TO 1951-1955. *By Michael T. Wermel.* Benefits and Insurance Research Center, California Institute of Technology, Pasadena, California, May, 1956. BIRC Publication Number 1. 19 pages.

Purpose: To illustrate the nature and extent of changes which occurred in the financial position of the California unemployment insurance program during the postwar decade.

Materials and Methods: Statistical data on the program's financial experience, gathered from the California Department of Employment, formed the basis for the narrative and tabular presentation. In order not to complicate the analysis, fourteen of the most significant basic program indicators were selected. Because year-to-year experience is not as indicative of program developments as averages covering longer periods, the decade was divided into two five-year periods. Wherever feasible, annual averages were computed for each of these five-year periods.

Facts Presented: The following general subjects are covered: (1) wages in covered employment; (2) rate of covered unemployment; (3) benefits, including weeks compensated, duration, exhaustion rates, and weekly benefit amounts; (4) benefit costs and employer taxes; (5) reserves; and (6) cost determinants.

Conclusions and Recommendations: The improvement in the financial position of California's unemployment insurance program in the second half of the decade over that of the first was demonstrated by the increase in reserves and by the adequacy of reserves measured in relation to cost experience. A sharp rise in taxable wages, a steep decline in the rate of unemployment, and a significant decrease in the average annual cost rate also characterized developments in the latter half of the period studied. These changes reflected the nation's high level of economic activity and California's rapid rate of economic growth during the 1951-1955 period as compared with conditions during the preceding five years. Continued improvement in program administration and stricter control over claims also contributed to the generally more favorable financial experience in the later period.

The 1951-1955 experience did not reflect in full the liberalizations of the benefit formula made in 1954 and 1955. The eligibility restrictions and disqualification provisions incorporated in the 1955 program amendments approximately offset the effects of the increase made in weekly benefit amounts in that year. No other amendments, however, countered the 1954 liberalization of the benefit formula. If the 1954 changes had been in effect throughout the 1951-1955 period, therefore, the financial results probably would have been less favorable than those which were realized.

Wermel, Michael T. (1957)
Rating Data and Methods

THE BENEFIT FORMULA IN UNEMPLOYMENT INSURANCE. *By Michael T. Wermel.* Benefits and Insurance Research Center, California Institute of Technology, Pasadena, California, January, 1957. BIRC Publication Number 5. 28 pages.

Purpose: To examine the structure and functioning of a benefit formula as they relate to program objectives. Emphasis is given to the ways in which the provisions of a benefit formula may affect the benefit rights of the persons to be protected and the cost of the program.

Materials and Methods: The analysis of the component parts of a benefit formula was based primarily upon the applicable provisions in the various state unemployment insurance laws. The assessment and comparison of these different provisions and their effects upon protection and cost were supplemented by review of the philosophy of the program as put forth in social insurance literature.

Facts Presented: As an introduction to the discussion of the mechanics of a benefit formula, note was taken of the essential characteristics and basic philosophy of the unemployment insurance program. Discussion of the elements of the benefit formula and the interdependence of some of the components included: (1) the wage base; (2) minimum and maximum benefit amounts; (3) the "fraction;" (4) the "steps;" (5) base period earnings; and (6) benefit duration.

Conclusions and Recommendations: The benefit formula contains a number of elements which affect both the rights of the claimant and the cost of the program. The initial selection of these elements and subsequent modifications carry with them important consequences. Therefore, the choosing and changing of the elements should be preceded by careful analysis of the desired social objectives.

O'Neill, Harold J. (1952)
Investments and Investment Management

THE ROLE OF LIFE INSURANCE INVESTMENTS IN THE CAPITAL MARKETS, 1945-1950. ***By Harold J. O'Neill.*** Unpublished M.A. Thesis, University of California, 1952. 97 pages.

Purpose: (1) To determine the importance of life companies as suppliers of long-term capital in relation to other institutional investors. (2) To study the factors determining the growth of life insurance company assets and the flow of such assets into the capital markets. (3) To determine the impact of life company investments upon the capital markets.

Materials and Methods: Charts, tables, and study of distribution of life company assets; the factors affecting flow of assets into capital markets; and the major areas of investment.

Facts Presented: (1) The consistently stable growth of life insurance company assets, resulting in the doubling of assets approximately every ten years, and the factors responsible for such growth. (2) Factors responsible for investment shifts in the distribution of assets, and the effects of such shifts upon the capital markets and various segments of the economy.

Conclusions and Recommendations: The flow of individual savings into life insurance has made the life insurance industry the largest single depository of public savings. As one of the principal suppliers of long-term capital, the life insurance companies' investment policies have had an effect upon both the demand and supply side of the capital markets. The rapid rate of asset growth, pressures for higher investment yields, and high liquidity of government securities investments, all operating within statutory limitations, have produced investment shifts and innovations that influence the pattern of corporate financing, the investment banking structure, and can have an affect upon the implementation of governmental monetary policies. The life insurance companies by their very size have created investment problems, the resolution of which has brought about significant changes in the capital markets and is necessitating changes in basic philosophies of both statutory regulation of life insurance investments and traditional policies and practices of investment portfolio management.

Schultz, Robert Edward (1956)
Investments and Investment Management

LIFE INSURANCE HOUSING PROJECTS. *By Robert Edward Schultz.* Richard D. Irwin, Inc., Homewood, Illinois, 1956. 154 pages.

Purpose: The underlying objective of this investigation was to determine the extent to which life insurance companies can invest in housing developments.

Materials and Methods: Annual statements, statutory provisions, personal interviews, and financial records of the companies.

Facts Presented: This study was limited to housing developments completely owned and managed by United States legal reserve life insurance companies. An analysis was made of the following four problem areas which govern this type of equity investment: (1) The legal limitations and restrictions imposed by the forty-eight states and the District of Columbia upon life insurance companies domiciled in each of the states and upon life insurance companies domiciled in one state but doing business in several states. (2) The basic investment standards which govern the long-run placement of life insurance funds in any asset. (3) The social and technical problems in operating and administering an equity investment in housing projects. This examination entailed a division of the housing investments into those investments which were primarily of a slum clearance nature, and as a result were given special governmental aid, and those projects which were carried out as a purely private operation. This first group of housing projects was developed with the aid of special legislative acts that enabled the life insurance company to use the state's power of eminent domain in the acquisition of land, and in some cases provided for certain tax concessions. Rent schedules in this type of operation were under the control of the city or municipal authority. The second group was developed with no legislative aid, and rent schedules were established by the individual life insurance company. (4) The actual investment experience, including operating expenses, depreciation, and net income, that life insurance companies have had from their housing projects.

Conclusions and Recommendations: It was concluded that this investment will not exceed a small percentage of total admitted assets of the life insurance industry; and while the legal limits set for the investment have not been approached, in the future these limits would prevent any individual companies from investing a major percentage of their total admitted assets in housing ownership. The individual project experience to date has varied from those projects which have proved to be highly successful investments to those which have experienced poor results.

Maxwell, Gerald W. (1956)
Trends and Problems

MAJOR ISSUES PERTAINING TO HEALTH INSURANCE. *By Gerald W. Maxwell.* Unpublished Ed.D. dissertation, Indiana University, 1956. 470 pages.

Purpose: The problem is the study of major issues which affect consumers of voluntary nongovernmental health insurance plans operating in the United States. The solution of the problem was based upon data obtained as the answers to three questions: (1) What conflicts of opinion, expressed or indicated, are, singly or in combination, sufficiently controversial and important to be major health insurance issues? (2) What reasons have been expressed or indicated for holding each general viewpoint on each major issue? (3) What are the historical development, characteristics, and status of health insurance in the areas in which major issues exist?

Materials and Methods: The data were collected by exhaustive examination of the literature; by interviews with regional, state, and local representatives of specified organizations; and by questionnaire from national representatives of specified agricultural, business, consumer, governmental, health, health insurance, labor, and social welfare organizations. The data were studied to: identify major issues, determine reasons for holding general viewpoints, and existing practice in the areas of health insurance around which major issues exist.

Facts Presented: Thirteen major health insurance issues were identified and studied thoroughly. Two major issues, pertaining to health insurers, involved (1) profit motive of health insurers, and (2) consumer representation on policy-making bodies of health insurers. Seven major issues, pertaining to health insurance contracts, concerned (1) proportion of financial loss due to hospital, surgical, and medical care covered by insurance; (2) incidence of financial loss due to preventive medical services; (3) incidence of financial loss due to regular dental care; (4) kind of benefit for financial loss due to hospital, surgical, and medical care; (5) provision for choice of physician by insured person; (6) cancellation of individual and family health insurance contracts; and (7) differentials in rates. Four major issues, pertaining to health insurance legislation, related to (1) coverage of employees' nonoccupational disability; (2) use of public funds for hospital, surgical, and medical care for the indigent; (3) reinsurance of health risks; and (4) compulsory vs. voluntary health insurance.

Conclusions: By examination of the 13 major issues, two major areas of controversy in health insurance were revealed: (1) proportion of financial loss due to health care covered by health insurance and (2) means used to increase the number of persons protected by health insurance. Study of current thought on health insurance issues disclosed that there was some tendency for recommendation for comprehensive coverage of health care costs to accompany recommendations for enactment of legislation—voluntary or compulsory—for the purpose of increasing the number of persons possessing health insurance protection; likewise, advocacy for coverage of burdensome health care costs was inclined to go hand in hand with advocacy for extension of health insurance protection by private, nongovernmental means.

PROBABLE FUTURE TRENDS IN HEALTH AND WELFARE PROGRAM EXPENDITURES. *By Michael T. Wermel.* Benefits and Insurance Research Center, California Institute of Technology, Pasadena, California, August, 1957. BIRC Publication Number 7. 19 pages.

Purpose: To forecast the direction future expenditures in health and welfare benefits will take, giving consideration to the amounts to be spent on these programs, the roles of the government and private enterprise in this spending, and the kinds of health and welfare programs upon which the monies will be expended.

Materials and Methods: The problem of forecasting eventual trends in health and welfare expenditures was approached on the basis of certain assumptions. In making these assumptions, economic and social developments were analyzed, unmet needs in the health and welfare field were evaluated, and weight was given to the probable demands other employee requirements will make upon total compensation.

Facts Presented: The study covers the following subjects: (1) how much will be spent on health and welfare programs, both quantitatively and in relation to other elements of employee compensation; (2) the extensions and additions to benefit programs resulting from increasing governmental interest and the incentives prevalent in the economy for private arrangements; (3) the kinds of health and welfare benefits for which expansion can be anticipated; and (4) factors which will limit the extension of health and welfare programs.

Conclusions and Recommendations: The major objectives for health and welfare plans would appear to fall within the areas of dependency benefits, major medical protection, post-retirement medical care benefits, and mental health measures. Developments relative to the provisions for the existing and prospective demands for health and welfare protection necessarily will be limited by the amount of total employee compensation available and the many conflicting pressures upon the distribution of this compensation. The aim should be to meet the real and basic needs for health and welfare protection as they develop. This makes it imperative that the available monies not be dissipated upon "nuisance" benefits and that effort be exerted to avoid overlapping and over-utilization of the various forms of protection.

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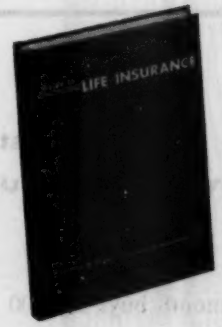

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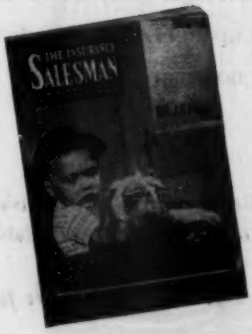

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